

ARCANA ENTOMOLOGICA.

ARCANA ENTOMOLOGICA;

OR

Illustrations

OF

NEW, RARE, AND INTERESTING

INSECTS.



BY J. O. WESTWOOD, F.L.S.,

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IN TWO VOLUMES.

VOL. II.



"Quand à nos yeux, à nos oreilles,
Tout parlait d'un Dieu createur,
Pourrons-nous admirer ces nombreuses merveilles
Sans rendre gloire à leur auteur?"—MUSANT.

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Systematic Arrangement

OF THE

ILLUSTRATIONS CONTAINED IN THE PRESENT VOLUME.

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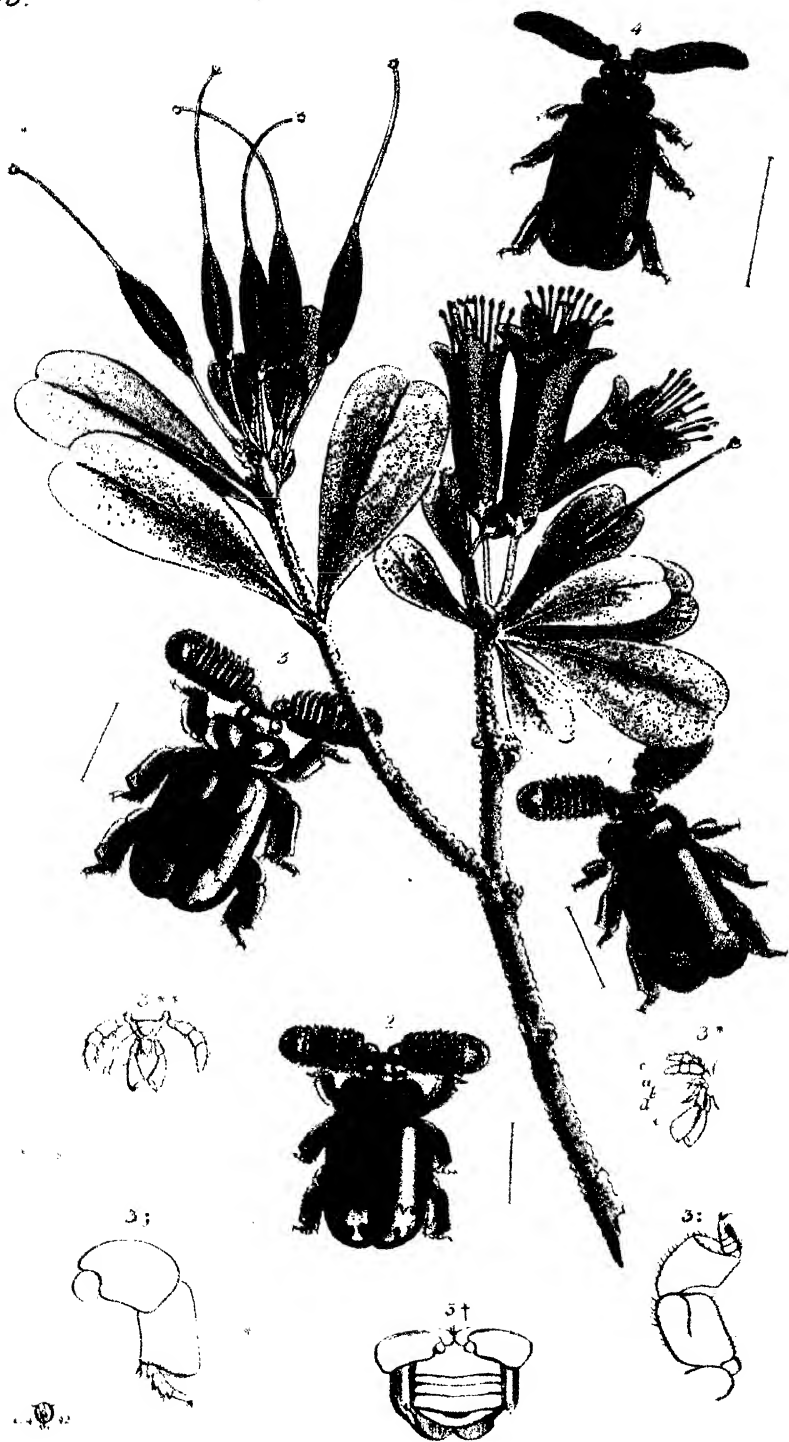
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ERRATA.

- P. 5, l. 24, *read* "Palpi labiales articulis *duobus* ultimis æqualibus."
- P. 20, l. 25, *add Note*, In *Tachypterus* both the recurrent veins enter the 2nd sub-marginal cell as in *Psamathæ*.
- P. 42. The species of *Tetrapalpus* were captured at Darjeeling, an invalid station in the Himalayan Mountains, near the Nepal frontier, about fifty miles from Dhawalagiri, by George R. J. Meares, Esq., by whom they were presented to Captain Parry.
- P. 54. Transpose the references † and ‡ to the second and third foot notes.
- P. 84. *Lamia* (*Sternotomis*) *Palinii*, is the *Lamia principalis*, Dalman. Sch. Syn. 4. iii. App. p. 162.
- P. 103, l. 17, *add* "The Genus *Ælurus*, Klog, founded on two New World Species."
- P. 115, *for* "*Thynnus interruptus*," *read* "*Thynnus Leachiellus*."
- P. 124. "*Aclurus morens*," *add*, "*alis fusco parum tinctis, apice areæ marginalis obscuriore*."
- P. 125. "*Lamia Comes*," *is* "*L. cornutus*, Fabr."
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- P. 161. "*Platyrhopalus suturalis*," *is* "*Pl. angustus*, var."





ARCANA ENTOMOLOGICA

PLATES XLIX AND L.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART I.

[HAVING acquired, since the publication of my various memoirs on the family Paussidæ, which have appeared in the Transactions of the Linnæan Society, vols. 16, 18, and 19; the 2nd volume of the Transactions of the Entomological Society, and the Entomological Magazine, vol. 5, much additional matter relating to these singular insects, as well as a considerable number of new species, of which no figures have yet been published, I have thought that a complete series of coloured figures of the entire family*, most of them redrawn with care for the purpose of this work, would be received with interest by entomologists.]

The family Paussidæ comprises a small assemblage of exotic coleopterous insects, varying from a quarter to rather more than half an inch in length, the species of which are of extreme rarity in collections (single individuals only of the greater portion being known); and at the same time so remarkable in their structure, that Latreille observed, "*vainement chercherions nous dans tout l'ordre des Coléoptères un genre qui nous offre des caractères aussi bizarres, et aussi insolites que les Paussus.*"—Nouv. Dict. d'H. N. v. 25, p. 57.

* The figures accompanying my ———— Transactions, published twelve years ago, were uncoloured.

The following are the *chief characters* of the family.

PAUSSIDÆ, Westw. (*Paussili*, Latr.; *Paussides*, Leach.)

Corpus oblongo-quadratum subdepressum, rigidum. Caput subtriangulare-globosum porrectum, collo instructum, antennæ permagnæ crassæ, difformes, articulis 2-10, articulo basali compresso, parte reliqua antennarum plus minusve depressa: labrum corneum porrectum; mandibulæ falcatæ cornes acutæ; maxillæ lobo satis magno, tenui, apice dentato, palpi maxillares magni. Labium corneum vel coriaceum: palpi labiales maximi. Thorax formæ diversæ. Elytra postice quadrata angulo externo apicali tuberculo sæpius instructo. Pedes subæquales breves compressi. Tarsi breves 5-articulati in plurimis; articulis laud lobatis; basali sæpius minuto. Abdomen thorace multo majus et elytris longius, e segmentis 4 constans, duobus intermediis multo brevioribus.

A short notice of the *history* of this family will show the great increase which has been made in our knowledge of its contents. The genus *Paussus* was proposed by Linnaeus in 1775, in a short paper, in the *Dissertationes Academicæ*, in which he also described the genus *Diopsis*, and with which he terminated his entomological career. Of the former genus he knew only a single species. Thunberg, in 1781, described two more species of *Paussus* in the Swedish Transactions, in which work the genus *Cerapterus* was described by Swederus in 1778. In 1798, Afzelius published an excellent paper on the *Paussi* in the Linnean Transactions, in which he described the then known species in detail, adding a new one. Donovan added several new species of *Paussus*, in the "Insects of India," and a new *Cerapterus* in his "Insects of New Holland," in which, for the first time, the relation existing between these two genera was noticed. One or two other species were added by Schönher, Dalman, and Fabricius; those introduced by the last-named author not belonging to the family. In the various memoirs which I have published, the number of species has been increased four-fold, excluding several now proved not to belong to the family; namely, those constituting the genus *Trochoideus* W. *, which, as shown by my dissections of one of the species published in the Transactions of the Entomological Society, is referable to the Endomychidæ, and those which strictly belong to the sub-family of which *Malachius* is the type †.

Of the *habits* of this family but little is known. The specimens of *Paussus sphaerocerus* captured by Afzelius at Sierra Leone, in the months of January and February, were taken in houses by

* 1. *Paussus cruciatus*, Daln., found in Guin copal; 2. *Troch. Dalmanni*, Westw., from Madagascar; 3. *Troch. Desjardini*, Guér., from the island of Mauritius; and 4. *Troch. Americanus*, Buq., from Colombia. A 5th unnamed species is in the collection of the Rev. P. W. Hope, from New Granada, probably identical with *T. Americanus*.

† 1. *Paussus flavicornis*, Fabricius (*Megadeuterus flav.*, Westw.; *Laius cyanens*, Guér.). 2. *Paussus ruficellus*, Fabr. (*Collops 4-maculatus*, Fabr., Erichson). 3. *Malachius vittatus*, Say (*Collops vittatus*, Erichson, *Megadeuterus Haworthii*, Westw.)

night, falling upon the table from the ceiling, on the introduction of lights upon the table. They are slow and steady in their movements, and evidently of great rarity. I have received statements of similar habits exhibited by several other Indian and Javanese species; and Mr. Westermann states that the eight species of the family captured by him, were all taken accidentally in houses by night, flying about wood, whence he conceives them to be nocturnal and xylophagous. (Silbermann, Rev. Ent. No. 3.) A species of *Paussus* was received by M. Dupont from Senegal, with the statement that it had been observed to crepitate like the Bombardier beetles; and M. Payen informed M. Lacordaire that the species which he had detected in the Moluccas and isles of Sunda, possess the same power. (Lacord. Introd. ii., p. 57.) M. Verreaux at the Cape of Good Hope, and Mr. George MacLeay in New Holland, have detected species of *Paussidæ* in ants' nests: the latter having also observed that the species of *Cerapterus* captured by him crepitates. A new species of this genus has recently been received by Mr. Hope from Port Philip, with the observation that it had been found under dried cow-dung as well as under the loose bark of trees.

Afzelius also states that in looking at one of his specimens of *Paussus sphærocerus* (remarkable for the globular, glossy, and pale-coloured club of its antennæ) in the evening, and happening to stand between the light and the box in which it was enclosed, so that his shadow fell upon the insect, he observed, to his great astonishment, the globes of the antennæ, like two lanthorns, spreading a dim phosphoric light. He adds, however, that he was "prevented from ascertaining the fact by reiterated experiments," as his specimen died. May not the reflected light falling upon the semipellucid livid-coloured balls of the antennæ give them the described appearance? Or, may it not be accounted for precisely in the same manner as the light emitted by the shining moss mentioned in Loudon's "Magazine of Natural History," (No. xv. p. 463,) by the late Mr. Bowman?

In their *geographical distribution* the insects of this family, hitherto known, are natives of the old world, if we except the species represented in plate 50, f. 2, which Mr. Miers has brought from Brazil. The others are from tropical and southern Africa, India, the islands of the Indian Ocean, and New South Wales; and one from the Balkan Mountains in Turkey.

The *relations* of these insects with other Coleopterous families

has been the subject of much doubt. Afzelius separated Paussus into a distinct fifth section of the Coleoptera, on account of its antennæ, observing, however, that they bear so much natural resemblance to Clerus, that their proper place in the systematic arrangement will be next to that genus. With Clerus, however, as well as with Cerocoma, (a relation proposed by Fabricius), or Silpha and Hispa (as suggested by Swederus), the Paussidæ can scarcely be said to possess a single point of relationship. Latreille united them, with many other groups, into a great tribe, under the name of Xylophaga, intermediate between the Rhynchophorous and Longicorn beetles. That they are related to some of the insects introduced amongst the Xylophaga, appears to me to be the case; but, as has been proved by various later writers, many of the Xylophaga belong to the great division Necrophaga, into which the Paussidæ must also enter, together with the Trogositidæ and aberrant Cuenjidæ, "which last may perhaps be regarded as possessing the greatest affinity with the Paussidæ, more particularly when we notice the depressed bodies, the formation of the antennæ, and especially the pentamerous tarsi in many of the genera of that family, such as Catogenus, Clinidium, Rhysodes," &c. Such is the opinion I expressed in my first Paper in the Linnæan Transactions, after a very extended series of dissections of a great number of allied genera of Xylophaga, and such is still my opinion notwithstanding Mr. MacLeay (Annul. of S. Afr. p. 73) has given me credit for having been the first to suspect the affinity of Cryptophagus with the Paussidæ, without having however expressed myself very clearly upon the subject. It would indeed have been extraordinary had I done so, because I never entertained such an opinion.

Mr. MacLeay also states that Trochoideus certainly leads off from the Paussidæ to Myrmecoxenus, Chev., Cryptophagus, &c., but in my opinion the first-mentioned genus does not possess the slightest relation with any of the others; in like manner the relationship asserted by Mr. MacLeay to exist between the Paussidæ and Pselaphidæ, seems to me equally unnatural, since no two groups can possess fewer points of resemblance in common. "It would have been quite as natural to assert the relation of the Paussidæ with the Ozenæ, for the latter crepitate, their bodies are polished, and their elytra furnished with tubercles at the outer posterior angles, as in the Paussi."

The resemblance thus pointed out by me in 1838 has appeared

to Dr. Burmeister to be of greater importance than I felt and still feel disposed to accord to it, since in a very philosophical memoir published by him in Guérin's *Magasin de Zoologie*, 1841, he has endeavoured to prove that the Paussidæ are nearly related to the Carabidæ, and especially to the Ozænæ, considering them as a group annectent to the Carabidæ, in the same manner as the Gyrinidæ are attached to the Dyticidæ.

My observations on the grounds on which Dr. Burmeister has deduced this relationship will be given in treating on the genera *Paussus* and *Platyrhopalus*, an examination of which led Dr. Burmeister to adopt these views.

The following is a *synoptical table* of the genera belonging to the family :—

Antennæ quasi 10-articulatæ	1. <i>Cerapterus</i> , SWED.
Antennæ quasi 6-articulatæ	
Prothorax truncato-cordatus	2. <i>Ceratoderus</i> , WESTW.
Prothorax transversus angulis anticis rotundatis; posticis valde emarginatis	3. <i>Lebioderus</i> , WESTW.
Prothorax angulis anticis valde productis	4. <i>Pentaplatarthrus</i> , WESTW.
Antennæ quasi bi-articulatæ	
Caput in prothoracem immersum; ocellis 2	5. <i>Hylotorus</i> , DALM.
Caput in prothoracem haud immersum, collo distincto, ocellis nullis	
Palpi labiales articulis æqualibus	6. <i>Platyrhopalus</i> , WESTW.
Palpi labiales articulo ultimo elongato	7. <i>Paussus</i> , LAM.

The various relations existing amongst the species of these different genera, do not appear to me to allow of their arrangement either in a linear or circular series in our present limited knowledge of the family. Mr. MacLeay, adopting a series of relations pointed out by me in the *Linnean Transactions*, proposed to arrange them in a circle by commencing with the *Paussi*, thence passing to *Platyrhopalus*, *P. Mellii* leading to *Cerapterus latipes*, *Cerapterus MacLeayi* to *Pentaplatarthrus*, by which last he returns to the *Paussi* with a bipartite prothorax. Considering the discovery of a circular arrangement of the species of a group to be the essential proof of its being natural, it follows that all other genera which appear to belong to the family must be rejected, "since, if inserted in the above circular series, they appear to interrupt it." I consider it however unquestionable that *Ceratoderus*, *Lebioderus*, and *Hylotorus*, are as truly Paussideous as *Cerapterus* or *Pentaplatarthrus*, and to be groups as high in the importance of their characters as either of those genera which Mr. MacLeay himself admits.

I shall accordingly describe the genera in the order given in the above table, without wishing it to be considered as their natural

linear series; and shall, under each group, notice the relations it appears to bear to the rest.

CERAPTERUS, *Swederus*.

Corpus depressum abdomine elytrisquo latis. Caput subtriangulare postice collo brevi cylindrico instructum: oculi globosi valde prominuli: antennæ capitis fronte insertæ pubescentes perfoliatæ 10-articulatæ, capite cum thoracæ paullo longiores, articulo 1mo compresso sublunari, reliquis latis depressis, 2—9 transversis, ultimo fere quartam partem antennæ constituyente apice rotundato: labrum mandibulæ et maxillæ parvæ. Palpi elongati inæquales; labiales crassiores. Elytra ad angulos posticos externos tuberculo instructa. Tarsi breves 5-articulati in excavatione apicali tibiarum sæpius recepti, articulis basalibus crassioribus subtus setosis.

In the number of the joints in the antennæ this genus stands alone in the family; several of its species, however, exhibit relations with some of the genera; thus *Cerapterus latipes* bears a strong resemblance to *Platyrhopalus Mellii*; the Australian species in their simple-formed prothorax and general form resemble the species of *Paussi* in which the prothorax is not bipartite, whilst *C. Westermanni* in its slender legs and dilated prothorax resembles *Lebioderus*.

Mr. MacLeay, in 1838, in his Paper on this genus, (introduced into Dr. Smith's *Illustrations of the Zoology of South Africa*, in consequence of a new species of the genus having been brought from thence by that naturalist) published figures of four species. I am now enabled by the kindness of several correspondents to describe as many as nine distinct species, which may be divided into the following subgenera.

SUB-GENUS I.—CERAPTERUS (strictè sic dictus).

Prothorax latissimus, lateribus rotundatis, antennæ latissimæ lateribus serratis articulo ultimo maximo. Elytra abdomen tegentia. Tibiæ latissimæ (in *C. 4-maculato* bicalcaratæ, in reliquis ecalcaratæ). Scutellum mediocre.

SPECIES I.—*Cerapterus latipes*. (Plate 49, fig. 1.) "*C. piceus*; elytris macula apicali flavescente subrotunda antice quadridentata postice lobata; antennis rufis articulo ultimo in tuberculo ad basin elevato." MacL. [Palpis labialibus sec. figuræ Swederi articulo ultimo paullo securiformi]. Long. corp. sec. fig. Swed. lin. 6.

Habitat in Oriente.

SYN.—*Swederus*, Kongl. Vetensk Acad. &c. t. 9, 1788, p. 203, pl. 6, f. I. Westw. Linn. Trans. 16, p. 669, and 18, p. 582. MacLeay Ann. Soc. Afr. pl. 4, fig. inf. sinistr.

The above description and the accompanying figure are taken from Mr. MacLeay's memoir above referred to, as that gentleman now possesses the original and still unique specimen described by Swederus, who states that it came from Honduras; but Donovan, on the authority of General Davies, the original possessor of the insect, stated it to be a native of Bengal. Mr. MacLeay further adds, "Thorax capite duplo latior medio posticeque utrinque foveo-

latus, antennæ lateribus convergentibus serratis, articulo ultimo quatuor præcedentibus simul sumptis longiore. Elytra thorace vix latiora. Tibiæ rufæ latissimæ apice haud spinosæ."

SPECIES II.—*Cerapterus Horsfieldii*. (Plate 49, fig. 2.) *C. piccus* thorace antice emarginato, elytris macula apicale flavescente haud rotundata, literam T quodammodo simulante, palporum labialium articulo ultimo valde securiforme. Long. corp. lin. 5½. Habitat in insula Java, Dr. Horsfield. In the collection of the East India House, and Mr. Melly.

SYN.—*Cerapterus Horsfieldii*, Westw. Linn. Trans. v. 16, p. 672, v. 18, p. 583. MacLeay op. cit. tab. 4, fig. sup. dext.

Mr. MacLeay from a careful comparison between Dr. Horsfield's and Swederus' insects, gives the following characters as distinctive of this species.

"Caput nigro-piccum, antennis rufo-ferrugineis lateribus parallelis vix serratis articulo basilari lobato, ultimo quinque precedentibus simul sumptis longiore: thorax capite triplo latior, postice utrinque subfoveolatus. Elytra thorace latiora: tibiæ rufæ apice haud spinosæ."

SPECIES III.—*Cerapterus quadrimaculatus*. (Plate 49, fig. 3, and details.) *C. picco-niger*, nitidissimus, prothorace (antice viso) subemarginato maculis duabus magnis obscure rufescentibus, elytris tenuissime punctatis maculis duabus magnis ovalibus prope scutellum alterisque duabus apicem versus majoribus antice et postice lobatis rufo-fulvis. Long. corp. lin. 5.

Habitat in insula Java, D. Westernmann.

SYN.—*Cerapterus quadrimaculatus*, Westw. Trans. Linn. Soc. v. 18, p. 583.

Fig. 3* represents the trophi seen laterally in situ; *a* is the labrum, *b*, the two mandibles, *c*, the maxillary palpi, *d*, the elongated labium, and *e*, the labial palpi, which are moderately securiform. Fig. 3** represents the same organs seen in front similarly lettered. Fig. 3: represents one of the fore feet; and 3; one of the hind ones, the tibiæ in the four latter bicalcarated, and the tarsi 5-jointed; and fig. 3† the under side of part of the body, the deflexed podex being visible beyond the terminal joint.

SUB-GENUS II.—ORTHOPTERUS, *Westw.*

Thorax latus (capite haud duplo latior): antennæ longiores sublatæ planæ lateribus subrectis, articulo ultimo medio. Elytra abdomen tegentia: tibiæ spina apicali intus instructæ.

SPECIES I. (IV).—*Cerapterus (Orthopterus) Smithii*. (Plate 49, f. 4.) *C. nigro-piccus* subnitidus, elytris macula fulva notatis, thorace latioribus et fere quintuplo longioribus. Long. corp. lin. 7½.

Habitat, South Africa within the tropic of Capricorn.

SYN.—*Cerapterus Smithii*, MacLeay op. cit. p. 74, pl. 4, fig. sup. sinistr. Westw, Linn. Trans. v. 18, p. 583, and Entomol. Mag. 5, p. 502.

This is the largest species in the family. A unique specimen was collected by Dr. Smith, and described and figured by Mr. MacLeay in the "Annulosa of South Africa," from which work my figure and description are derived.

SUB-GENUS III.—ARTHROPTERUS, *MacLeay*.

Caput thorace haud angustius; thorax subquadratus antice paullo latior. Antennae sublatae lateribus haud serratis articulo ultimo mediocre. Elytra angusta abdomine breviora: tibiae apice bicalcaratae angulo opposito acuto: scutellum minutum: tarsi intra tibiarum apices haud contractiles.

SPECIES I. (V.).—*Cerapterus (Arthropterus) MacLeaii*. (Plate 50, fig. 4.) C. rufo-brunneus antennarum lateribus haud serratis; thorace subconvexo postice angustiore angulis anticis rotundatis posticis acutis disco in medio vix canaliculato; elytris oblongo-quadratis; pedibus rufo-brunneis. Long. corp. lin. $4\frac{1}{2}$.

Habitat in Nova Hollandia. In Mus. D. MacLeay.

SYN.—*Cerapterus MacLeaii*, Donovan, Ins. of New Holland, Plate 3. MacLeay, op. cit. pl. 4, fig. inf. dext. Westwood. Linn. Trans. 16, p. 672, 18, p. 384, and Ent. Mag. 5, p. 503.

Mr. Francillon's unique specimen of this species is now in Mr. Macleay's possession, from whose figure in the work above quoted mine is copied.

SPECIES II. (VI.).—*Cerapterus (Arthropterus) Hopii*. (Plate 50, fig. 5, and details.) C. piceus punctatus nitidus setosus, elytris brunneo-piceis, antennis pedibusque nigricantibus prothorace ovali postice truncato medio leviter canaliculato, antennarum lateribus subserratis. Long. corp. lin. $4\frac{1}{2}$ —5. Habitat in Nova Hollandia. Port Philip. Mus. D. Hope and Parry.

Several specimens of this species have been received by the Rev. F. W. Hope, from New Holland; namely, one from Mr. W. S. MacLeay, who has suggested the specific name which I have adopted above; and others, from Port Philip: the latter captured under bark, and beneath dried cow-dung.

Fig. 5 *a* represents the head from the front, and 5 *b* sideways, * being the labium, † the mandibles, and o the maxillary palpi; the labial palpi, as seen in these figures, are of large size, and very securiform. 5 *c* is one of the mandibles highly magnified; 5 *d* one of the maxillae, also highly magnified, with the basal portions separately indicated for more easy comparison with the figures to appear in the subsequent plates of this monograph; 5 *e* represents the labium and basal joints of the labial palpi as seen from the outside of the mouth, the former of small size, and scarcely extended beyond the extremity of the basal joint; in 5 *f* (as seen within the mouth) the two basal joints are seen to be soldered together, forming the inside of the labium; 5 *g* represents the mentum, which in this species forms, with the two lateral pieces, a kind of collar, enclosing the labium and base of the labial palpi; 5 *h* represents one of the hind feet; and 5 *i* a fore-foot: all having two apical spines, and the tarsi, especially in the hind feet, clearly seen to be 5-jointed.

SUB-GENUS IV.—PHYMATOPTERUS, *Westw.*

Depressiusculus: caput thorace augustius: prothorax cordato-truncatus medio longitudinaliter impressus: antennæ latæ serratæ: elytra oblongo-quadrata ad angulum externum apicalem tuberculo instructa. Tibiæ latæ interne ad apicem bicalcaratæ, angulo externo opposito rotundato. Tarsi distincte 5-articulati.

SPECIES I. (VII.)—*Cerapterus (Phymatopterus) piceus*. (Plate 50, fig. 3.) *C. piceus* tenuissime punctatus antennis pedibusque rufo piceis, capite thorace minori angulis pone oculos acuto productis. Long. corp. lin. 5.

Habitat in Nova Hollandia. In Mus. D. Curtis et Gory.

Cerapterus (Phymatopterus) piceus. Westw. in Ent. Mag. 5, p. 503; Linn. Trans. v. xviii. p. 584.

Cerapterus MacLeai? Westw. in Trans. Ent. Soc. vol. ii. p. 95, pl. x. fig. 7.

SUB-GENUS V.—HOMOPTERUS, *Westw.*

Depressiusculus: caput thorace paullo latius vertice depresso; palpi maxillares parvi graciles articulo ultimo longiori attenuato; labiales 3-articulati articulo 1mo. minuto 2do. latiori brevi angulis apicalibus acutis, 3tio. maximo valde securiformi; antennæ longiores subplanæ anticè subserratæ, margine postico subcontinuo; thorax cordato-truncatus; elytra elongato-quadrata. Femora et tibiæ latissimæ, hæc apice ecalcaratæ et pro receptione tibiarum excavatæ. Tarsi breves articulis intermediis subtus setosis.

SPECIES I. (VIII.)—*Cerapterus (Homopterus) Brasiliensis*. (Plate 50, fig. 2, and details.) *C. fulvo-rufescens*, tenuissime punctatus oculis albidis, vertice depresso, thorace intra angulos posticos utrinque foveolato. Long. corp. lin. $3\frac{1}{2}$.

SYN.—*Cerapterus Brasiliensis*, Miers's MS. Westw. in Linn. Trans. vol. xviii. pl. 39, fig. C, a, and b.

“This insect was caught on the Coreavado Mountain, near Rio Janeiro, by a negro whom I employed.”—*Miers's MSS.*

The unique species above alluded to is now in Mr. Miers's rich collection of South American insects.

Figure 2 *a* represents the head seen in front, * being the labrum, and † the mandibles, which are more highly magnified in 2 *b*; 2 *c* is one of the maxillary palpi; 2 *d* one of the labial palpi seen laterally; 2 *e* one of the antennæ seen laterally, showing the broad compressed basal joint and the depressed terminal joints; 2 *f* are two of the intermediate joints of the antennæ; 2 *g* one of the fore legs; and 2 *h* the abdomen seen from beneath.

SUB-GENUS VI.—PLEUROPTERUS, *Westw.*

Caput thorace duplo augustius. Antennæ elongatæ subplanæ, articulo 2do. extus in angulum acutum producto. Palpi elongati, labiales articulo ultimo crassiori vix securiformi. Labium maximum rigidum. Thorax elytrorum latitudine lateribus margine elevato, postice valde sinuato utrinque in auriculam producto. Elytra oblongo-quadrata, basi bicostata; Pedes elongati graciles tibiis bicalcaratis tarsisque latis, subtus setosis 5-articulatis articulis 1 et 4 minoribus.

SPECIES I. (IX.)—*Cerapterus (Pleuropterus) Westermanni*. (Plate 50, fig. 1, and details.) *C. rufo piceus* haud nitidus; elytris nigris postice cruce rufescenti notatis, basi bicostatis, disco longitudinaliter sub impressis apice rufescentibus. Long. corp. lin. $4\frac{1}{2}$.

Habitat in Insula Java. In Mus. D. Westermanni.

I have named this species after the distinguished entomologist to whose kindness I am so greatly indebted, for sending me his unique

specimens of this and several other species of the family, from Copenhagen, for my examination.

Figure 1 *a* represents the head in front, and 1 *b* sideways—* being the labrum, † the mandibles, and ‡ the labium; 1 *c* is one of the fore feet; and 1 *d* one of the hind ones.

The plant represented in Plate 49 is the beautiful Javanese *Rhododendron retusum*, and in Plate 50 is figured the *Rhodanthe Manglesii*, Lindl., from the Swan River Settlement.

EXTRACTS FROM PROFESSOR BURMEISTER'S MEMOIR ON THE PAUSSIDÆ.

(MAG. DE ZOOL. 1841.)

After remarking upon the insufficiency of the characters derived from the tarsi for the natural distribution of the Coleoptera into primary groups, and noticing that the structure of the wings has been hitherto unemployed in characterizing the higher groups of beetles, Professor Burmeister considers that in the latter character he has discovered the true grounds for removing the Paussidæ from all the various families with which they have been associated, and bringing them into the neighbourhood of the Carabidæ. Considering the great service which has been long obtained by employing the variation in the structure and position of the wing-veins in the Diptera and Hymenoptera, and which has recently been extended to the Lepidoptera by Boisduval, Lefebvre, and more especially Milne Edwards (from whom we may shortly expect a most elaborate memoir upon the subject), to the Orthoptera by De Haan, to the Homoptera by myself, and to a portion of the Neuroptera by Rambur; it is surprising that this character should have received so little attention amongst the Coleoptera; and, without assigning to it the primary importance attached to it by Burmeister, I cannot regard his employment of it (as well as of the number of segments of the abdomen, both in this memoir and in his *Handbuch der Entomologie*, vol. 4) otherwise than as proofs of a deep and philosophic spirit of inquiry.

“Je donne ici (observe Burmeister) quelques indications sur la construction générale des ailes des Coléoptères. D’abord il est nécessaire de connaître la construction de leur membrane, même

pour voir si elles sont couvertes de petits poils ou glabres. La petitesse des poils m'a fait longtemps croire que les ailes de tous les Coléoptères en sont privées, comme se sont véritablement les ailes des Lamellicornes ; mais un examen plus attentif, avec un microscope composé, m'a montré que le plus grand nombre des Coléoptères, comme les Carabiques, les Hydrocanthares, les Cycliques, les Dimères, les Mycétophagiens, ou la plupart des familles ont des ailes couvertes par des poils microscopiques. C'est aussi le cas des Paussidæ. Considérant, ensuite, la disposition des nervures dans les ailes, nous remarquons que tous les Coléoptères ont deux nervures principales, que je nomme *nervure marginale* et *nervure radiale*. La nervure marginale est située au bord antérieur de l'aile et est accompagnée généralement par une autre nervure, plus petite, qui part aussi de la base de l'aile. La nervure marginale n'atteint pas le bout de l'aile ; mais elle se termine, à peu près à la moitié, aux deux tiers ou aux trois quarts de sa longueur, près du bord antérieur, par une articulation ; c'est le point dans lequel l'aile est pliée, si elle doit être couverte par les elytres. La nervure radiale part de la base de la première, mais en divergeant sur un angle plus ou moins grand, cette nervure se dirige vers le bord postérieur de l'aile ; mais elle ne l'atteint pas et se termine aussi par une sorte d'articulation à la même hauteur que celle de la nervure marginale. J'ai trouvée ces deux nervures dans toutes les ailes des Coléoptères, et souvent seules, comme chez les Cis, et dans la plupart des genres contenant des espèces très petites ; mais, chez la plupart des Coléoptères, l'aile a des nervures accessoires. Ces nervures sont situées, tantôt entre les deux nervures principales et tantôt après la radiale. Je nomme les premières *discoidales* si elles sont entre la nervure marginale et la radiale, et *apicales* si elles sont après les articulations des deux nervures au bout de l'aile : enfin, je nomme *basales* toutes les nervures qui sont situées après la radiale, au côté du bord postérieur de l'aile. Ces trois groupes différents de nervures sont très variables chez les différentes familles des Coléoptères et donnent un très bon caractère pour les déterminer." The wing of the Paussidæ is then described in detail, and figures of the wings of *Platyrhopalus denticornis*, *Calosoma sycophanta*, *Dyticus marginalis*, *Gyrinus natator*, *Cucujus* sp., and *Bostrichus* sp., are given by Dr. Burmeister, who adds,

"Un seul regard montre une ressemblance générale parfaite entre les ailes des *Platyrhopalus*, *Calosoma*, *Dyticus*, and *Gyrinus* ;

mais la plus grande différence entre les quatre ailes des carnassiers et celles d'un *Cucujus* et d'un *Bostrichus*, genres aberrants de la famille des Longicornes et des Rhyncophores. Nous avons ici, en même temps, l'occasion de voir l'importance de la configuration des ailes pour déterminer les familles naturelles ; car nous voyons les quatre ailes des Coléoptères, qui sont des membres d'un seul groupe naturel, tout-à-fait semblable : mais celles des autres groupes diffèrent, non seulement de celles des carnassiers, mais aussi entre elles ; et la même ressemblance que l'on voit dans les ailes de ces quatre carnassiers se trouvera si l'on compare les ailes des Longicornes avec celles du *Cucujus depressus*, ou, d'un autre côté, si l'on compare celles des Rhyncophores avec celles d'un *Bostrichus*. Je le répète, les ailes de tous les carnassiers sont couvertes de petits poils microscopiques, et nous trouverons les mêmes poils à l'aile d'un *Platyrhopale*."

Hence he considers that—

" Les Pausides sont des Coléoptères carnassiers, très voisins des Carabiques et remplaçant la même modification du type des carnassiers terrestres, comme les Gyriniens parmi les carnassiers aquatiques."

He then institutes an extended and very careful series of comparisons between the structure of the various parts of the body of the Paussidæ and various carnivorous genera, and thus proceeds :

" L'analogie avec les Gyriniens n'est elle pas grande ? ceux-ci n'ont-ils pas les mêmes jambes courtes et comprimées comme la plupart des Pausides ; et les tarses des Gyriniens ne sont-ils pas tout-à-fait particuliers et différents des tarses des Dyticiens ? C'est pourquoi personne ne peut douter que ces deux familles ne soient les membres d'un groupe plus grand et naturel que nous nommons des Hydrocanthares et qui est placé à côté des Carabiques, dans le plus grand groupe des carnassiers. Il est nécessaire de donner un nom général pour les deux groupes des Carabiques et Pausides, qui forment ainsi les Coléoptères carnassiers terrestres, et je propose le nom de Geolestès, dérivé de γῆ, terre, et de ληστής, ravisseur, puisqu'ils sont des ravisseurs de la terre, comme les Hydrocanthares les ravisseurs de l'eau. Ainsi les carnassiers sont déterminés et partagés de cette manière ;" the GEOLESTES composed of two groups, 1 *Carabidæ*, and 2 *Paussidæ*, and the HYDROCANTHARIS of two groups ; 3 *Dyticidæ*, and 4 *Gyrinidæ*.

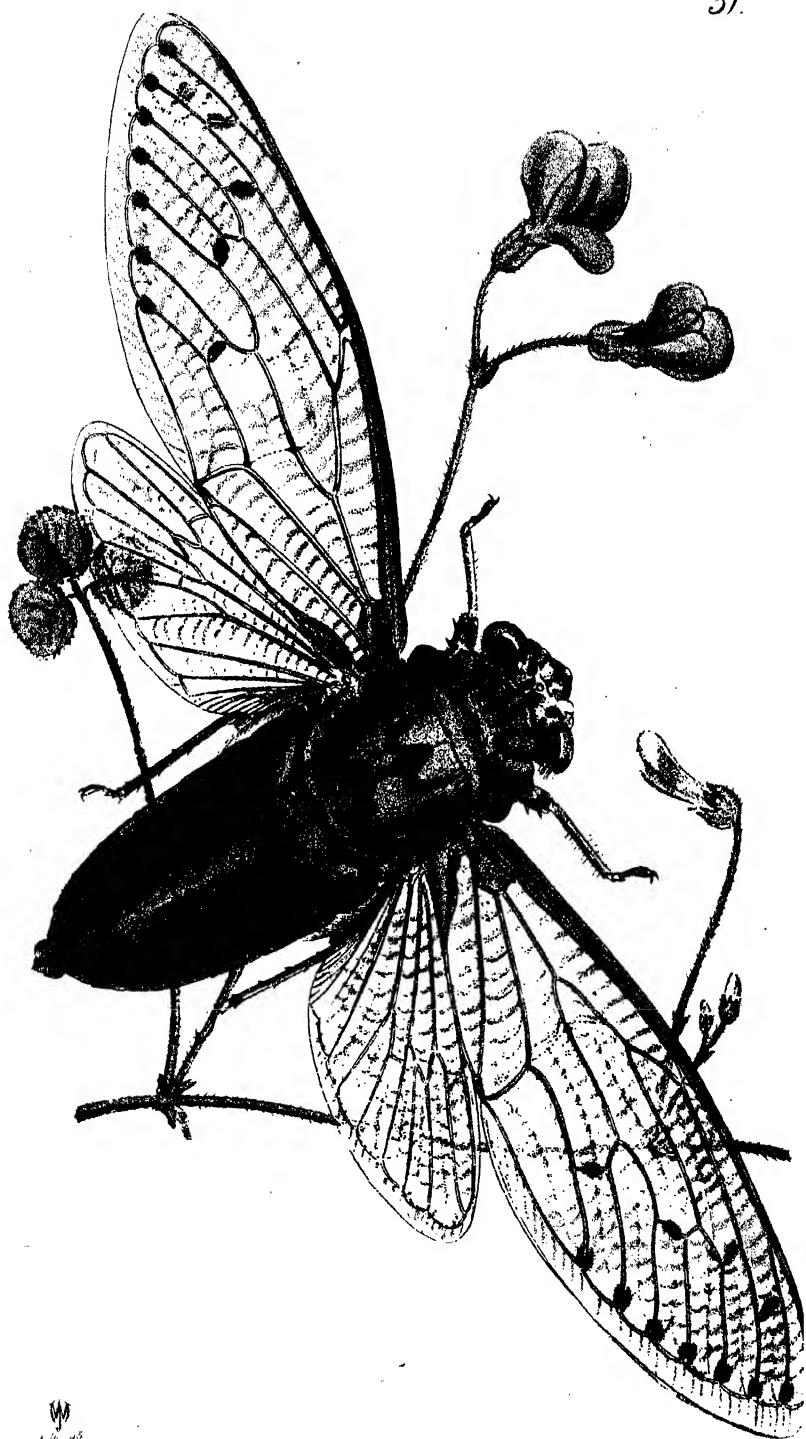


PLATE LI.

DESCRIPTION OF A GIGANTIC SPECIES OF CICADA, FROM INDIA.

DR. GERMAR, in his excellent memoir upon the species of the Genus *Cicada*, published in the 8th livraison of Silbormann's "*Revue Entomologique*," has arranged them in the following manner:—

1. Fore wings transparent and hyaline.
 - A. Scutellum emarginate, sp. 1—3.
 - B. Scutellum not emarginate.
 - a. Head broad and short, eyes prominent, sp. 4—38.
 - b. Head triangular, eyes simple, sp. 39—47.
2. Fore-wings coloured, coriaceous opaque, sp. 48—53.
3. Fore-wings coriaceous at base, with a transverse vein which divides them into two halves, sp. 53—60.

It will be serviceable to compare Dr. Burmeister's arrangement, given in the second volume of his "*Handbuch der Entomologie*," with that of Dr. Germar. It is as follows:—

1. Fore-wings at the base parchment-like, apical portion transparent hyaline.
 - a. Prothorax dilated at the sides. (*C. stridula*, &c.)
 - b. Prothorax not dilated, narrower than the head. (*C. philæmata*, &c.)
2. Fore-wings not horny at the base.
 - A. Tarsi 3-jointed.
 1. Lateral margin of prothorax not dilated into a plate.
 - a. Head small. (*C. formosa*, *villosa*, *rufescens*, &c.)
 - b. Head large; eyes prominent. (*C. orni*, &c.)
 2. Lateral margin of prothorax dilated into a plate broader than the broad head. (*C. olivacea* Germar.)
 - B. Tarsi 2-jointed.
 1. Prothorax with lateral dilatations. (*C. tympanum*, &c.)
 2. Prothorax not dilated at the sides, narrow. (*C. mannifera*, &c.)

The species represented in the accompanying Plate (by far the largest of any hitherto known, and now for the first time figured), enters into Dr. Germar's section 1. B. b., and into that of 2. A. 1. a., in the arrangement of Dr. Burmeister. The following are its characters:—

CICADA IMPERATORIA, *Westwood*. (Annals of N. H.)

PLATE 51.

C. luteo-fulva, capite et thoracis dorso maculis plurimis magnitudine et forma variis, nigris; mesothoraceque figura trifida notatis; pronoti lateribus in medio emarginatis et angulatis; abdomine brunneo lateribus pallidioribus macula in singulo segmento utrinque nigra; alis flavido-hyalinis, venis fulvis; anticarum venis transversis subapicalibus fusco nebulosis maculisque septem versus marginem fuscis. Long. corp. unc. $3\frac{1}{2}$. Expans. alar. unc. $8\frac{1}{4}$.

Inhabits the East Indies (Nepaul, &c.) and the Indian Islands. In my own and other collections.

This fine insect is nearly allied to *C. fusca* Oliv. Stoll, *Cigal*, fig. 36, from the west coast of Sumatra, as well as to the *Cicada flava*, of Guérin, figured in Belanger's "Voyage aux Indes Orientales." The specimen figured is a male, the drum-covers being visible at the sides of the base of the abdomen, hiding the greater part of the posterior femora on the underside. They extend no farther than is here represented. If this species make a noise proportioned to its size, it must indeed be loud. That of the small European species has long been famous, as the Odes of Anacreon prove. Having in the first volume of this work (p. 98) given an English translation of his Ode to the Cicada, a German one by Ramler, quoted by Burmeister, is here added.

Glücklich nenn' ich dich Zikade!
 Daß du auf den höchsten Bäumen
 Von ein wenig Thau begeistert,
 Aehnlich einem König singest.
 Dein gehöret all und jedes,
 Was du in den Feldern schauest,
 Was die Jahreszeiten bringen;
 Dir sind Freund die Landbewohner,
 Weil du keinem lebst zu Leide,
 Und die Sterblichen verehren
 Dich, des Sommers holden Boten;
 Und es lieben dich die Musen
 Und es liebt dich Phoebos selber;
 Er gab dir die klare Stimme;—
 Auch das Alter dich nicht drängt,
 Seher, Erdgeborne, Sänger,
 Leidenlos, ohn' Blut im Fleische.
 Schier bist du den Göttern ähnlich!

The plant represented in the plate is the Indian *Parochetus communis*.



PLATE LII.

ON THE AUSTRALIAN SPECIES OF PAPILIO.

THE species of *Papilio* hitherto recorded as natives of New Holland, are very few in number. The following is a list of all those which I am acquainted with as inhabitants of that portion of the world.

SPECIES I.—*Pap. Ilioneus*, Donovan, Ins. N. H. (not of Abbot and Smith, Ins. of Georgia.)

SPECIES II.—*Papilio Canopus*, Westw. in Ann. of Nat. Hist.; of which figures will be given in a subsequent number.

SPECIES III.—*Papilio Capaneus*, Westw. (Plate 52, fig. sup.)

P. alis supra fuscis anticis striga tenui subapicali ad costam dilatata lutescenti, posticis caudatis macula magna straminea pone medium, in linea ad marginem analem ducta lunulis tribus rubris ocelloque rubro et caeruleo ad angulum analem; anticis subtus fuscis, striga obsoleta, parte ad costam pallida solum relicta; posticis pone medium serie irregulari macularum albarum; lunulisque sex fulvis spatio intermedio caeruleo irrorato ocelloque anali fulvo nigro et caeruleo, incisuris albis. Expans. alar. unc. $4\frac{1}{2}$.

Mus. Soc. Linn. et Entomol. Lond. D. Alex. MacLeay.

SPECIES IV.—*Pap. Eretheus*, Donovan, Hübner, Exot. samml.

Pap. Aegus, Donovan, Hübner (female).

SPECIES V.—*Pap. MacLeayanus*, Leach, Zool. Misc. Hübner. Zutr.

SPECIES VI.—*Pap. Sarpedon*, Linn. Westw. Brit. Cycl. N. H. pl. for Butt.

I have received an Australian specimen of this species from the Linnæan Society, being one of a collection sent by Alex. MacLeay, Esq. It has not before been recorded as inhabiting a more southern latitude than New Guinea.

SPECIES VII.—*Papilio Lycaon*, Boisduval MSS.

A new species, very closely allied to *P. Eurypilus* of Clerck's *Icones* and Evemon Bdv.; figures of which, already drawn, will be given in a future number of this work.

SPECIES VIII.—*Pap. Antinous*, Donovan, Ins. N. H.*

SPECIES IX.—*Papilio Sthenelus*, MacLeay. Scarcely distinguishable from *P. Epilus*.

SPECIES X.—*Papilio Anactus*, MacLeay, in Append. to King's Survey of Aust. p. 458.

As no figure has hitherto appeared of this interesting species, I have represented its under surface in the lower figure of Plate 52. It has been described as allied to *P. Epilus* and *P. Machaon*, but it has a much more striking relation to *Papilio Cressida* Fabricius. The upper side differs only in having the pale spots on the fore wings rather more dusky than beneath. I was first acquainted with this species from a specimen in the collection of Mr. Lewis, of Kensington, the possessor of a fine collection of shells. I have since obtained the species from a dealer in insects.

SPECIES XI.—*Papilio (Eurycus) Cressida*, Fabr. Donovan. *Cressida Heliconides*, Swainson, Z. I., 2d ser. pl. 94.

SPECIES XII.—*Papilio (Eurycus) Harmonia*, Fabr. Donovan.

The orchidaceous plant represented is the Australian *Diuris punctata*, Smith.

* A butterfly, which appears to me to differ in no respects from Donovan's figure, stands in the collection of the Jardin des Plantes, with the manuscript name of *Papilio Alexander* attached to it.

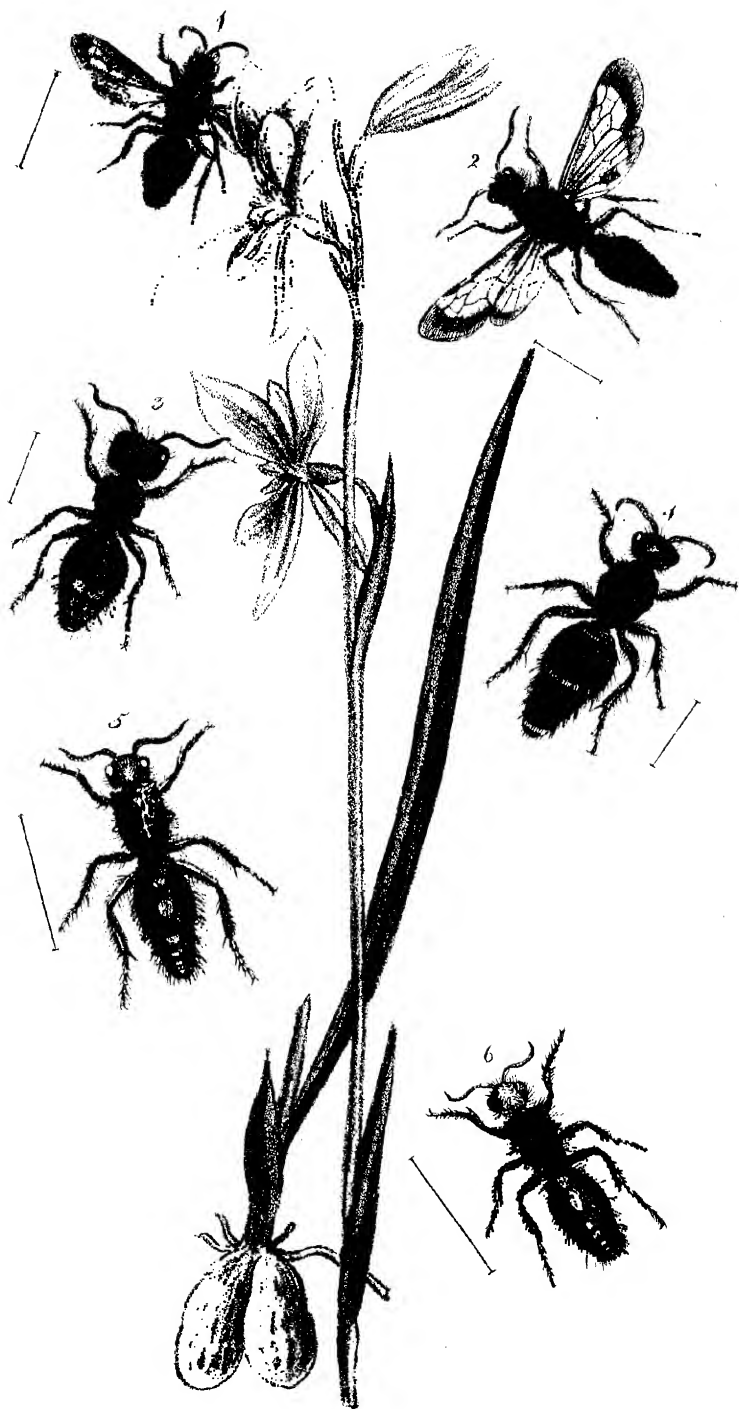
TO A BUTTERFLY.

FROM HERDER.

LIGHT and lovely thing of sky,
 Butterfly !
 Flutt'ring ever amid flowers,
 Fed on buds and dewy showers,
 (Flower thyself, or leaf with wings !)
 Say, what finger rosy-red
 Thy rich colours brings ?

Was 't some sylph that o'er thee threw
 Each bright hue ?
 Raised thee from morn's fragrant mist,—
 Bade thee through thy day exist ?
 Ah, beneath my fingers prest,
 Palpitates thy tiny heart,
 E'en to death distrest.

Fly away, poor soul ! and be
 Gay and free !
 Thus, no more a worm of earth,
 I shall one day flutter forth ;
 And, like thee, a thing of air,
 Clothed in sweets and honeyed dews,
 Each sweet flow'ret share !





PLATES LIII. AND LIV.
ON THE MUTILLÆ OF NEW HOLLAND.

It is a curious circumstance, in reference to the geographical distribution of insects, that the two Hymenopterous groups of fossorial species, possessing apterous females, should be so unequally dispersed over the surface of the earth. Whilst the genus *Mutillæ* is found in every quarter of the globe, *Thynnus* is confined to the southern hemisphere, and is here only met with in the Australian and South American continents. It is further worthy of notice, that whilst *Thynnus* is a numerous group in Australia and rare in South America, the *Mutillæ* of the western world are far more numerous than those of New Holland and its dependencies.

It is most probable that the economy of both these groups are identical, and that the females are sand-burrowers; and the males attached to flowers rather than predaceous in their habits.*

GENUS.—*MUTILLA*, *Linnaeus*.

The following are all the Australian species of *Mutilla* which I have hitherto seen in collections, or of which I have met with the descriptions:—

SPECIES I.—*Mutilla formicaria*. (Plate 53, fig. 6.) *M. nigra*, capite cinerascenti-hirto, thorace nigro, scabro, lateribus vix tuberculatis, abdomine nigro (subpiceo in certo sitr.); linea dorsali macularum albo-cinerascentium lateribusque abdominis albo-hirtis. ♀. Long. corp. lin. 9.

SYN.—*Mutilla formicaria* Fabricius, Ent. Syst. 2, 368. Syst. Piez. p. 430.

Originally described by Fabricius from the Banksian Cabinet, where the specimen still remains. The Rev. F. W. Hope has recently obtained a specimen in Mr. Gould's collections from Port Essington.

SPECIES II.—*Mutilla rugicollis* Westw. (Plate 53, fig. 5.) *M. nigra* nitida scabra, capite, maculis dorsalibus pilisque lateralibus abdominis albo-cinerascentibus, thoracis angulis anticis lateribusque tuberculato-angulatis, thoracis dorso punctis magnis oblongis, metathoraceque spatio elongato-triangulari impresso, abdominis segmento secundo magno valde scabro, medio tenne punctato, plaquæ rotundata albo-cinerascenti alteraque semicirculari basali e pilis segmenti basalis formatæ, segmentis reliquis etiam plaquæ ejusdem coloris notatis. ♀ Long. corp. lin. 9.

In the cabinet of the British Museum, ticketed "Hunter, New

* A memoir on the habits of some Indian species of *Mutilla*, by Captain Boys, was read at the Entomological Society, on the 5th June, 1843, in which are described the proceedings of a male in the act of dragging along a dead cockroach, in a manner precisely similar to that adopted by female fossorial insects, whilst provisioning their nests. It is scarcely to be supposed that a male *Mutilla* could have been thus employed.

Holland," and in the collection of the Rev. F. W. Hope, from Western Australia.

Obs.—This species is very closely allied to *M. formicaria*, but is at once distinguished by the structure of the thorax and sculpture of the body.

SPECIES III.—*Mutilla ferruginata*, Westw. (Plate 54, fig. 4.) *M. ferruginea punctata*, capite cinerascenti-hirto, abdomine maculis tribus e pilis fulvis in medio marginis postici segmentorum 1ⁿⁱ, 2^{di} et ultimi; antennis pedibusque nigris, tarsis piceis, thorace ovali anticè truncato, dorso punctis regularibus rotundatis; lateribus haud tuberculatis; segmento 2^{do} abdominis magno in medio longitudinaliter impresso; dorso punctis oblongis impresso. ♀. Long. corp. lin. 7.

In the collection of John Curtis, Esq., F.L.S., &c., from New Holland.

SPECIES IV.—*Mutilla aurata*. *M. cœrulescens hirta*, antennis fuscis, abdominis segmento primo maximo macula magna dorsali aurata nitente; reliquis segmentis basi atris; alis nullis. ♀.

SYN.—*M. aurata* Fabricius, Ent. Syst. 2, 368. Syst. Piez. p. 430.

Described as a native of New Holland, by Fabricius, from the Banksian Collection. I have not, however, been able to discover the species in the cabinets of the Linnæan Society.

SPECIES V.—*Mutilla ruficornis*. *M. nigra*, antennis rufis, ano pilis albidis tecto, alis atris. ♂.

SYN.—*M. ruficornis* Fabricius, Ent. Syst. 2, 369. Syst. Piez. p. 431.

Also described by Fabricius as a native of New Holland, from the same collection as the last, but I have not been able to find it there.

SPECIES VI.—*Mutilla Australasiæ*. *M. hirta nigra* antennis rufis thoraceque hirta obscure rufo, abdomine ovato nigro segmentis 1, 2, ultimoque margine ciliato albis, pedibus rufis. *M. ciliato triplo major*.

SYN.—*M. Australasiæ* Fabricius. Syst. Piez. p. 433.

Described by Fabricius as a native of "Nova Cambria," from the collection of Labillardière.

SPECIES VII.—*Mutilla dorsigera*, Westw. (Plate 53, fig. 4.) *M. nigra*, parum hirta obscura, tenue at valde punctata, antennis pedibus, mandibulis basi dorsoque collaris et thoracis obscure rufis, abdomine opaco, nigro, segmentis 1, 2 et ultimo striga marginali e pilis albo-sericeis formata, cinctis; thorace in medio lateribus parum angulatis capiteque, parum latiore, abdomineque multo minori; pedibus antennisque brevioribus. ♀. Long. corp. lin. 4½.

Habitat in Terra Van Diemenii. D. Lewis. In Mus. Westw.

I can scarcely think this to be identical with the *M. Australasiæ*, although it is closely allied to that species.

SPECIES VIII.—*Mutilla affinis*, Westw. (Plate 54, fig. 2.) *M. brevis robusta nigra* hirta punctata, thorace postico obscure ferrugineo, abdomine segmentis 1 et 2 pilisque analibus albidis, pedibus piceo rufis, antennis tarsisque obscuris, thorace supra tenue oblongo-punctatis, abdomine breve-ovali tenuissime punctato. ♀. Long. corp. lin. 4½.

Habitat in Nova Hollandia. In Mus. Brit. No. 550.

Allied to *M. dorsigera*, but much more robust in proportion to its size, and more obscurely coloured.

SPECIES IX.—*Mutilla lateralis*. Westw. (Plate 54, fig. 3.) *M. nigra subopaca punctata*, antennis mandibulisque nigris, pedibus rufis, abdominis segmento basali supra, 2^{di} late-

ribus et subtus ferrugineis ; hoc et reliquis ad marginem posticum pilis aureis ; facie antè oculos plana et recte truncata. ♀. Long. corp. lin. $2\frac{1}{2}$.

Habitat in Terra Van Diemenii. In Mus. D. W. W. Saunders, F. L. S.

SPECIES X.—*Mutilla elegans*, Westw. (Plate 53, fig. 2.) *M. tota* cerulea nitida punctata, cinerascenti-hirta, antennis longis tarsisque nigris, abdomine elongato, segmento 1mo petiolari, alis pallide cinerascenti-hyalinis apice late fuscis. ♂. Long. corp. lin. $4\frac{1}{2}$. Expans. alar. lin. $6\frac{3}{4}$.

Habitat in Terra Van Diemenii. D. Ewing. Mus. Brit. et Westw.

In this species the veins separating the submarginal cells are inserted into the marginal cell at nearly equal distances apart ; and the first recurrent vein is received by the second submarginal cell rather beyond the middle, whilst the second recurrent vein is received nearly at the extremity of the third submarginal cell, forming nearly a straight line with the extremity of the third submarginal cell.

SPECIES XI.—*Mutilla abdominalis*, Westw. (Plate 53, fig. 1.) *M. nigra* tenuiter punctata hirta, capite scutelloque cinerascenti hirtis, abdomine obscure purpureo tenuissime punctato pilis albis utrinque ad apicem segmentorum 2di et ultimi ; pedibus nigris, tibiarum 4 posticarum et articulo basali tarsorum albis ; alis fuscis, hyalino-variegatis, segmento basali abdominis parvo nodum parvum transversum ad basin formanti, 2do magno campanulato. ♂. Long. corp. lin. 6. Expans. alar. lin. 11.

Habitat in Australasia. In Mus. Brit.

The insertion of the veins in this species is very similar to that of the preceding species.

SPECIES XII.—*Mutilla morosa*, Westw. (Plate 51, fig. 1.) *M. nigra* punctata nigro-hirta, thorace rugose-punctato, abdomine fascia pilorum alborum ad apicem segmentorum 1mi et 2di, hoc parum constricto, alis hyalino et fusco variis, apice late fusco. Long. corp. lin. 6. Expans. alar. lin. $9\frac{1}{2}$.

Habitat "Swan River." In Mus. Brit.

SPECIES XIII.—*Mutilla concinna*, Westw. (Plate 53, fig. 3.) *M. capite* magno, cyaneo punctato antice bicorniculato, thorace parvo nigro oblongo-punctato, lateribus et subtus ferrugineis, abdomine magno aeneo nitido, sericeo, postice pilis aureis in maculas dispositis ornato, antennarum articulo basali mandibulisque (visi ad apices oblique emarginatos) pedibusque ferrugineis. Long. corp. lin. $4\frac{1}{2}$.

Habitat in Terra Van Diemenii. Mus. Newman, Westwood, etc. The trophi do not differ in this curious species from those of the rest of the genus.

GENUS.—PSAMATHA, Shuckard.

This genus was established by Mr. Shuckard, in the Transactions of the Entomological Society of London, for the reception of an insect having precisely the habit of a male Mellinus, but remarkable as being the only one yet characterized among the Mutillidæ in which the second sub-marginal cell receives both the recurrent nervures,* in which respect it also differs from all the species of insects of which Thynnus is the typical form, except the genus Tachypterus Guérin. Dr. Klug having on this account omitted the genus and its supposed female in his beautiful memoir on the Thynni, recently published in the Berlin Transactions, I have been

* Shk. in Trans. Ent. Soc. ii. p. 69.

induced to add a figure of it, and of *Diamma cærulæa*, to my representations of Australian Mutillæ.

As the genus *Psamatha* has been described at some length in the work above referred to, it will be necessary only that I should notice some peculiarities omitted by Mr. Shuckard; these relate especially to the structure of the mouth. The clypeus (plate 54, fig. 5 *a*) is carinated down the middle, being produced in a transverse lobe over the labrum, of which the anterior ciliated margin is almost hidden. The mandibles are much curved, and terminate in three acute teeth, the apical one being the largest. In the male *Mutillæ* the mandibles are simply bifid; the same is also the case with the majority of the *Thynni*. The Chilian *Telephoromyia* Guér. and the Kangaroo Island *Tachypterus* Guér. have, however, the mandibles bidentate within. The maxillæ (fig. 5 *b*) in *Psamatha* do not materially differ from the general form of these organs amongst the fossorial species, with 6-jointed maxillary palpi; the labium (fig. 5 *c*) in my specimen is considerably exerted and emarginate at the tip, arising from a very narrow carinated mentum, slender in front, and with 4-jointed labial palpi. The unguis in all the feet are bifid, (fig. 5 *d*), in which respect the insect agrees with the *Thynni*, and differs from the *Mutillæ*. The eyes are but very slightly emarginate on the inside, whereas they have a deep notch in the male *Mutillæ*. The veins of the wings extend quite to the apical margin as in the *Thynni*, whereas in the *Mutillæ* they stop at some distance from the margin. And lastly, the want of colour in these organs, as in this insect, occurs in the *Thynni* more ordinarily than in the *Mutillæ*. The extremity of the abdomen (fig. 5 *e*) is incorrectly described by Mr. Shuckard, as it has only one valve on each side projecting beyond it (in my specimen being coloured whitish) forming the quadrant of a circle, and externally fringed; the apical ventral plate is truncate at its extremity, and not produced into a spine as in many *Thynni*, nor bidentate as in the male *Mutillæ*.

SPECIES I.—*Psamatha chalybea*, Shuckard. (Plate 64, fig. 5.) *Chalybea nitida* griseo-pubescent, margine postico prothoracis albido, abdomine atro utrinque maculis quatuor albidis, pedibus rufis basi nigris, tarsis piceis. Long. corp. lin. 6—6½. Expans. alar. lin. 11½.

Habitat in Terra Van Diemenii. Mus. Soc. Ent. Lond. Saunders, Shuckard, et Westw.

I am indebted to W. W. Saunders, Esq., for this interesting species.

DIAMMA, *Westw.* (In Proceedings of Zool. Soc., April 14, 1835.)

Corpus elongatum nitidum apterum, thorace in medio constrictum segmentisque abdominis basi subcoarctatis. Caput subhorizontale fere rotundatum. Clypeus (fig. 6 a) medio longitudinaliter carinatus, antice in lobum transversum, super labrum productus. Labrum margine antico ciliato. Mandibulæ longæ curvæ falcate, intus et ante apicem acutum dentibus tribus aequalibus armatæ. Maxillæ (fig. 6 b) lobo externo tenui margine rotundato; palpi maxillares graciles 6-articulati articulis 3 et 4 longioribus. Mentum corneum (fig. 6 c) elongatum labio in apice ejus retractile. Palpi labiales 4-articulati articulis intermediis obconicis. Antennæ breves convolutæ 12, articulatæ articulo 2do minuto, apicalibus gracilioribus. Thorax quasi binodosus. Nodus anticus fere rotundatus e collari maximo constans. Mesonotum in anulum brevem angustum contractum. Mesosternum majus, obliquum, et pedes intermedios gerens. Metathorax magnus nodum posticum thoracis constituens et spiraculis duobus lateralibus instructus. Abdomen oblongo-ovale subdepressum segmento basali ad apicem constrictum. Pedes breviusculi spinosi unguibus bifidis (fig. 6 d).

The very interesting insect, which is the type of this genus, is closely allied to *Myrmecodes* Latr., or the females of *Thynni* and to *Myrmosa* Latr. The peculiar toothing of the mandibles, is, however, quite unlike that of those insects, whilst the elongated maxillary palpi are still more unlike those of the female *Thynni*, *T. variabilis* ♀ for example, in which the maxillary palpi are extremely short and apparently only 3-jointed, a peculiarity overlooked by Dr. Klug in his Memoir on *Thynnus*, although it is one which would have caused him to hesitate previous to sinking all the genera established by M. Guérin. I am unwillingly prevented at present from entering into this part of the subject so fully as it deserves, and shall only add that, in the females of *Myrmosa*, *Methoca*, and *Mutilla*, the palpi do not differ from those of the males, which is also most probably the case in *Diamma*. The very slight pilosity of the body of the type of this genus, its polished surface, articulated thorax, and bifid ungues, are all characters which it, however, possesses in common with the female *Thynni*; which appear to me to be its nearest allies.

SPECIES I.—*Diamma bicolor*, Westw. (Plate 54, fig. 6.) D. tota purpurea, cyaneo, vel cyaneo nitens, antennis pedibus mandibulisque rufis, his ad apicem nigris. Long. corp. lin. 9½.

Habitat in Terra Van Diemenii. In Mus. nostr., &c. Communic. Dr. Ewing, &c.

M. Guérin has described a female insect from Kangaroo Island (in the *Voyage de la Coquille*, texte, p. 235,) under the name of "*Diamma ephippiger*; Apteris, niger nitidus levigatus mesothorace, metathorace pedibusque fulvis." Like *D. bicolor* ♀, it has 6-jointed maxillary palpi, but the mandibles have only a single tooth within, and Mr. Shuckard assures me that this insect is the female of *Rhagigaster unicolor*, an insect which differs considerably from *Psamattha*.

The plant represented in pl. 53 is the Australian *Diuris aurea* of Smith, and that in plate 54 is *D. maculata*, from the same country.

“ This is human happiness !

Its secret and its evidence are writ
 In the broad book of Nature. ’Tis to have
 Attentive and believing faculties ;
 To go abroad rejoicing in the joy
 Of beautiful and well-created things ;
 To love the voice of waters, and the sheen
 Of silver fountains leaping to the sea ;
 To thrill with the rich melody of birds,
 Living their life of music ; to be glad
 In the gay sunshine, reverent in the storm ;
 To see a beauty in the stirring leaf,
 And find calm thoughts beneath the whispering tree ;
 To see, and hear, and breathe the evidence
 Of God’s deep wisdom in the natural world !
 It is to linger on ‘ the magic face
 Of human beauty,’ and from light and shade
 Alike to draw a lesson ; ’tis to love
 The cadences of voices that are tuned
 By majesty and purity of thought ;
 To gaze on woman’s beauty, as a star
 Whose purity and distance make it fair ;
 And in the gush of music to be still,
 And feel that it has purified the heart !
 It is to love all virtue for itself,—
 All nature for its breathing evidence ;
 And when the eye hath seen, and when the ear
 Hath drank the beautiful harmony of the world,
 It is to humble the imperfect mind,
 And lean the broken spirit upon God ! ”

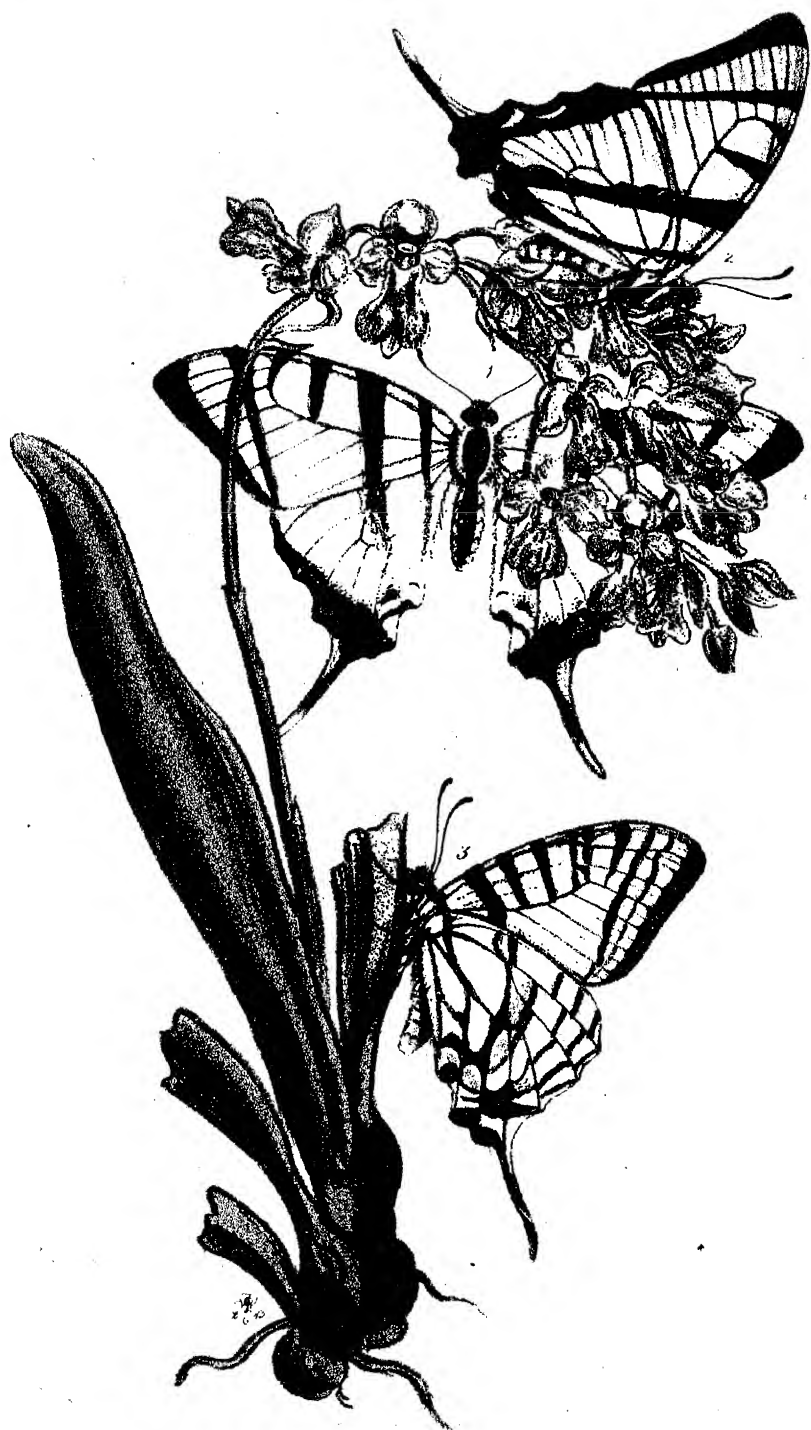


PLATE LV

ILLUSTRATIONS OF TWO HITHERTO UNFIGURED SPECIES OF THE
GENUS PAPILIO FROM INDIA.

THOSE beautiful species of the genus *Papilio*, which are for the most part distinguished by having the ground of the wings pale yellowish or cream-coloured, traversed by straight black fasciæ, often extending across both the wings, and having the hind wings terminated by long slender tails, and which constitute Boisduval's sixteenth group, appear to be dispersed nearly over the whole globe, and hence from this cosmopolitan disposition, and the great similarity which exists amongst the species, some confusion both in the synonymes and habitats of several of them has taken place. Thus the *Papilio Nominis* of Esper, (*P. Meges* Hb. *P. Niamus*, Godart. Swainson, *Zool. Ill.*, 2 ser., pl. 32,) an insect now known to be a native of India*, was described by Godart as an inhabitant of Brazil, whilst Mr. Swainson even asserts that he took the species in that country. Other allied species appear to be of the greatest rarity in the East, amongst which may especially be mentioned *P. Telamon*, of Donovan, a native of China, which we may now, perhaps, hope to receive; *P. Doreus Reinhardt*, beautifully figured by M. De Haan in the 6th plate of his splendid Memoir on the *Papiliones* of the East, and the two species represented in my plate; of these the two upper figures exhibit both surfaces of the wings of an entirely new species, whilst the under figure represents the underside of a species not hitherto figured, and of which a description of the upper side alone has hitherto been given to the public.

PAPILIO AGETES, Westw. (PLATE 55, figs. 1, 2.)

P. alis pallidissime stramineis costa vix virescenti, anticis fasciis 4 (tertia a basi abbreviata,) margineque apicali nigris, posticis margine apicali nigro maculaque anali rubra. Expans. alar. unc. 3½.

Inhabits the East Indies (Sylhet?) Mus. Brit.

This elegant species is allied to *P. Agesilaus*, and especially to *P. Doreus*. The extremity of the discoidal cell in the fore wings is connected with the costa by a small black conical mark, which in some of the allied species becomes an additional fascia. The two basal bars of the fore wings are carried across the hind ones beneath;

* I have now before me a considerable number brought home by Colonel Hearsey, a gentleman devotedly attached to the study of the transformations of Indian *Lepidoptera*.

the second being marked near the costal margin of the latter with two red curves, which, as well as the bases themselves, are slightly visible through the wing, when seen from above; the dark margin of the hind wings bears two white lunules, and these wings have a white marginal spot below the anal angle, which is marked with a long red patch, surmounted above by black, and resting on an oblique short black streak.

PAPILIO GLYCERION, *Gray*. (PLATE 55, fig. 3.)

This species was first very concisely described by Mr. G. R. Gray, in the *Zoological Miscellany**. Boisduval subsequently gave a more detailed description of its upper side from a drawing sent him by the former author. I have therefore preferred figuring the under side. The upper surface of the fore wings differs from the under in having the black bars at the extremity of the wing more distinct and broader, and the under wings are much less varied with the dark marks, which are confined nearly to the apical margin. The space between the base of the tail and the anal angle is covered by a patch of black; the yellow spot is, however, not surmounted by the black line.

I am indebted to Captain Parry for an opportunity of figuring this rare species, which he received from Semlah, in the East Indies.

The Nepalese plant represented in the plate is the Orchidaceous *Tribrachia reptans*. Lindl. Coll. Bot., tab. 41.

* The Plates and descriptions of General Hardwicke's insects, quoted by Boisduval, have not been published.

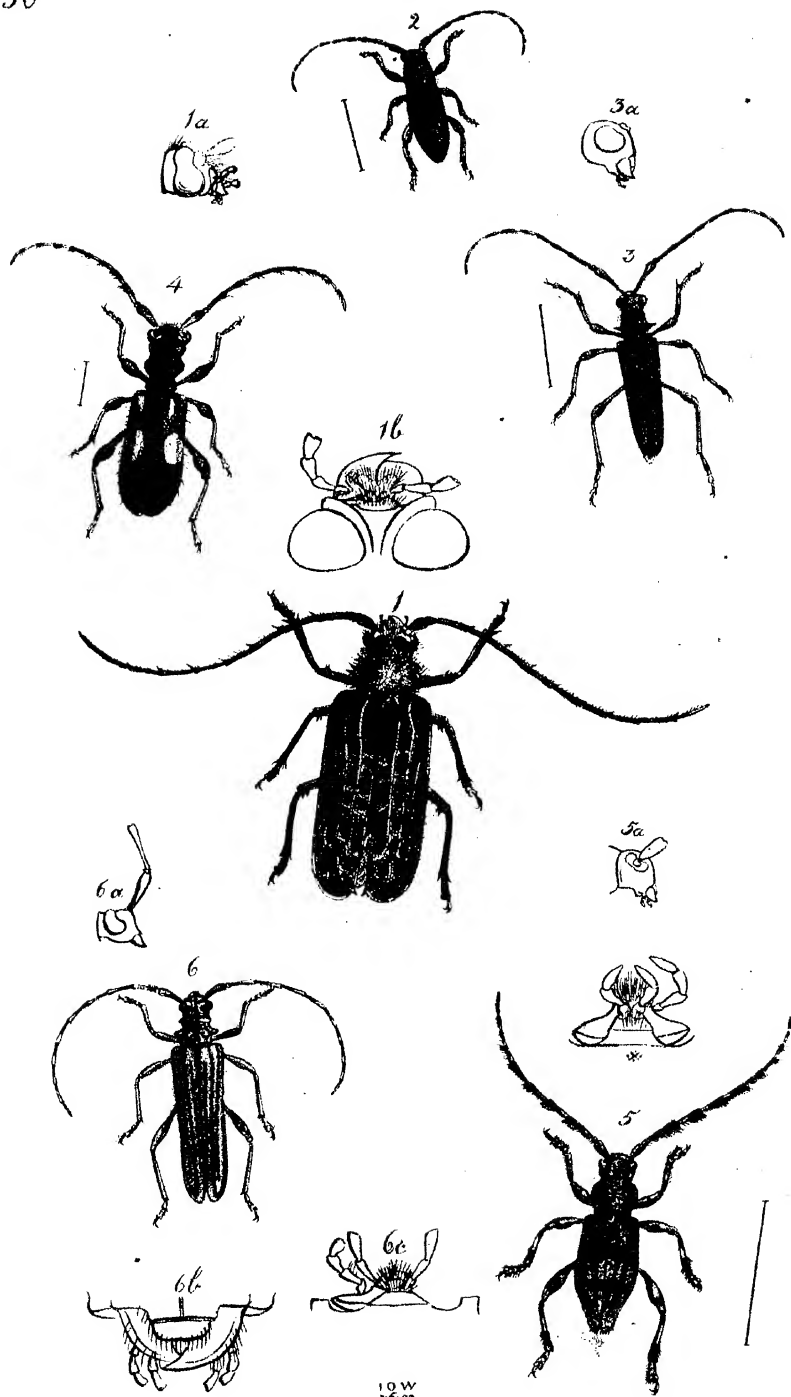


PLATE LVI.

ON THE LONGICORN COLEOPTERA OF NEW ZEALAND.

CAPTAIN F. PARRY having placed in my hands for publication some of the Longicorn species of beetles which he has recently obtained from New Zealand, I have considered that it would be serviceable to add to my descriptions a list of all the Longicorn species, hitherto described as natives of that country, which is accordingly given beneath, being chiefly derived from the Appendix to Dieffenbach's Travels.

SPECIES I.—*Prionus* (*Prionoplus*) *reticularis*, White, in Dieff. Trav. vol. ii. App. p. 276. (Plate 56, fig. 1). P. picco-fuscus; facie, pronoto, et thorace subtus pilis aureo-fuscis tomentosis, elytris pallide reticulatis.
Long. corp. lin. 17—18.

“This *Prionus* forms a section or sub-genus distinct from *Sceleocantha* and *Toxentes* of Newman (Annals and Mag. of Nat. Hist. v. pp. 14, 15), the latter founded on the Australian *Prionus arcuatus*, Fabr.; it differs essentially from *Malloderes*, Dupont (Guér. Mag. Zool. 1835, pl. 125), and *Aulacopus*, Serville (Ann. Soc. Ent. France, 1832, pp. 144, 145), of the characters of the species of which it partly partakes,”—White, op. cit. *Malloderes*, founded upon a Chilian insect, and *Trichoderes* of Chevrolat (Guér. Mag. Zool. 1843, pl. 113), upon a Mexican species, differ from the present in the armature of the thorax, each side of which, in our insect, is armed with a short spine in the centre. The eyes are of a very large size, the palpi short, the third and following joints of the antennæ terminated by a short spine. The male antennæ are rather longer than the body. All the femora are armed within at the tip by two short spines, and the clytra are rounded at the tips, with a short spine at the extremity of the suture.

Captain Parry's specimen is from Port Nicholson. Fig. 1 a, represents the head seen laterally, and fig. 1 b, the underside of the head.

SPECIES II.—*Phoracantha dorsalis*.

SYN.—*Stenochorus dorsalis*, MacLeay, in Append. to King's Survey, ii. p. 451.

Phoracantha dorsalis, Newman, Ann. of Nat. Hist. v. p. 19; White, op. cit. p. 278.

SPECIES III.—*Coptomma variegatum*, White, op. cit. p. 278.

SYN.—*Callidium variegatum*, Fabricius, Ent. Syst. 2, 325; Syst. El. 2, 340; Oliv. 70, tab. 5, fig. 58.

Tmesisternus var., Bdv., Guérin.

Coptomma vitticollis, Newm. Ann. Nat. Hist., v. p. 18.

SPECIES XI.—*Xylotoles lentus*, Newman, Entomol., No. 1, p. 12.

SPECIES XII.—*Lamia heteromorpha*, Bdv. Voy. Astrol. 2, 505. I believe species XI. and XII. to be identical with *Xylotoles griseus*.

SPECIES XIII.—*Xylotoles lynceus*, White, op. cit. p. 279.

SYN.—*Saperda lyncea*, Fabricius, Ent. Syst. 1, 2, p. 313; Syst. Eleuth. 2, 323.

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, in which the typical specimen is still preserved. Its elytra, divergent at the tips, at once separate it from the preceding species.

SPECIES XIV.—*Obrium Fabricianum*, Westw.

SYN.—*Clytus minutus*, Fabricius, Syst. Ent. 192; Ent. Syst. 2, 332; Syst. El. 1, 2, p. 346; Oliv. Ins. 70; Fab. 5, fig. 56.

Nec *Obrium minutum*, Auct. hodiern.

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, where the typical specimen still exists, although in a bad state of preservation. The species is very closely allied to the following, of which it might perhaps be considered an immature individual, were not the joints of the antennæ black at the tips.

SPECIES XV.—*Obrium guttigerum*, Westw. (Plate 56, fig. 4.)

O. cyaneum nitidum, clytris magis purpurascensibus basi subtuberculatis, singula plaga magna mediana rotundata albida parum elevata, articulis omnibus antennarum ad apicem, apicibusque clavatis femorum nigris. Caput antice fulvo-purpureum, trophis brevibus rufescentibus, mandibularum brevium apicibus nigris, thorax elongatus ante et pone medium valde constrictus, medio rotundato gibboso. Tibiæ et tarsi pallide testacei.

Long. corp. lin. $2\frac{3}{4}$.

Habitat Port Nicholson, New Zealand. Mus. Parry.

SPECIES XVI.—*Saperda tristis*, Fabricius, Syst. Ent. 186, and Ent. Syst. vol. iv., Appendix, p. 453—(where Fabricius has corrected the errors in the transposition of the names of the species described by him in vol. i. part 2, p. 314 of that work, where the *S. lineata*, from Zanguebar, was described under the name of *tristis*.)

The species was described by Fabricius in his earlier works correctly as a native of New Zealand, from the Banksian Collection, where the typical specimen is still preserved. In the Syst. Eleuth. (2, p. 326) by another strange error Fabricius assigns Germany as the native country of the species.

SPECIES XVII.—*Saperda villosa*, Fabr., Syst. Eleuth. 2, p. 320; White, op. cit.

SYN.—*Saperda hirta*, Fabr. Ent. Syst. 1, 2, p. 309 (nec *S. hirta*, Fabr. Ent. Syst. 1, 2, p. 317, ex Italia).

Described by Fabricius as a native of New Zealand, from the Banksian Cabinet, in which the typical individual is still preserved.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

(No. XIV.)

KING'S COLLEGE, LONDON.—In the very large collection of objects of nature and art, presented to the museum of this institution last year by Her Majesty, and which was collected at Kew for the education of the family of King George III., was a considerable collection of insects, made, as it was stated, under the direction of Sir Joseph Banks, and other naturalists, his friends. Having, on the occasion of the opening of this museum, on the 22nd June (1843) had an opportunity of examining this collection, I can but express the disappointment I felt on not finding therein any of those species of insects which Sir Joseph Banks brought home from the islands of the Southern Ocean, of which it seemed probable that duplicates would have been presented to the cabinet of his royal patron. The only insects of value which I observed on a cursory view, are *Papilio Cressida*, *P. Harmonia*, the latter in fine preservation, as is also a specimen of *P. Pelasus*; several of the large species of *Ægeria* with very hairy hind legs; several fine species of *Mantis* and a large species of *Xya*. The collection was kept in glazed drawers, each insect stuck in a small square pasteboard tray, turned upside down, into which some waxen secretion had been poured.

ASHMOLEAN MUSEUM, OXFORD.—This very interesting and well-kept collection has recently received a valuable donation, consisting of a cabinet of insects of all orders, from Sylhet or some of the adjacent parts of India, in which many of the new and splendid species recently described by the Rev. F. W. Hope are comprised. It likewise contains several species of *Papilio* which appeared to me, on a casual examination, to be undescribed, as well as a specimen of the singular *P. Payeni*, being, I believe, the only specimen of that insect in this country.

ZOOLOGICAL SOCIETY.—The Earl of Derby, President of this Society, has recently presented to it a very extensive and valuable series of insects, from the hilly and hitherto unknown country in the interior of the south of Africa, lying between 25° and 26° S. lat., and 27° and 28° E. long., collected by Mr. Burton, as noticed

in vol. i. p. 174 of this work. In addition to the splendid goliath-beetles, described in my former volume, the collection is very rich in Anthiæ, Graphipteri, a new and singular large species of Cicindela; several new Dromicæ, several singular Cremastocheili and Longicorn beetles (of which I have made drawings and descriptions for publication in this work). The collection comprises all the orders of insects, and is extremely interesting in an entomo-geographical point of view. A second selection has been presented by the Earl of Derby to the British Museum.

INSECTS OF SICILY AND CORFU.—The insects of these two interesting localities have recently been closely investigated by A. Melly, Esq., and the Rev. Mr. Kuper, who have lately returned home from thence, bringing with them extensive collections, preserved with the greatest care, and comprising numerous series, especially of minute species of Coleoptera, many of which are quite new, both generically and specifically. An extensive selection of the species from Corfu has been presented to the Entomological Society by the latter gentleman.

INSECTS FROM SYLHET, THE KASYAH HILLS, AND THE ADJACENT PARTS OF INDIA.—In addition to the cabinet recently presented to the Ashmolean Museum, mentioned above, several collections of insects from these hitherto scarcely known districts of India have within the last few months arrived in England. One of considerable extent has been sent to R. H. Solly, Esq.; another received by the Rev. Mr. Stainforth, was subsequently sold, when the Rev. F. W. Hope obtained the Coleoptera, Orthoptera (containing some splendid Grylli), Homoptera (including some beautiful Fulgoridæ, &c.), and Mr. H. Doubleday the Lepidoptera. The Lepidopterous portion of another large collection, subsequently arrived, has been purchased by the British Museum, in which was comprised the new species of Papilio, figured in Plate 55. The Coleoptera of this collection were purchased by Captain Parry, and the other orders by the Rev. F. W. Hope, who has likewise received another collection from the same country, through the agency of Dr. Cantor. The Entomological Society of London has also received a considerable collection from Mr. McClelland; and within the last few days I have received a small but interesting collection of Assamese species, from W. Robinson, Esq., of Gowliatti, E. I. containing various new and interesting species, which I propose to figure in future Numbers of this work.

HISTOIRE DES INSECTES NUISIBLES A LA VIGNE, et particulièrement de la Pyrale, qui dévaste les Vignobles des départements de la Côte d'Or, &c., avec l'indication des moyens qu'on doit employer pour la combattre. Par M. VICTOR AUDOUIN. Paris, Fortin-Masson. 1842, large 4to, 350 pp. 23 coloured Plates.

THE publication of this splendid work at length enables entomologists to appreciate the vast loss which their favourite science has sustained in the lamented decease of M. Victor Audouin, and to determine his legitimate station amongst the "heroes scientiæ." This work clearly shows the manner in which the study of insects was converted into a science by one of its most talented professors, and at the same time rendered beneficial to the great mass of mankind. It will also clearly prove to those who do not care to form collections of species, that the investigation of the habits of a single insect is sufficient to prove a great mine of enjoyment, and that entomologists may find sufficient employment for a life without moving far beyond the precincts of their own abodes.

The situation which was so well filled by M. Audouin, united to the great interest with which he regarded everything connected with the habits and economy of the insect tribes, especially fitted him to undertake the investigation of the economy of and determine the practicability of remedies against a small Lepidopterous insect, the *Pyralis* (Tortrix), *Vitana* Fabr., which had proved extremely injurious to the vines of France, thereby materially affecting one of the great resources of part of the kingdom. The result of these investigations is now given to the scientific world under the auspices of the French Government. And whether we regard the work as affording a complete view of the natural history of the insect, in all its states, as well as that of its various enemies, as a minute detail of structural peculiarities, both internal and external of the insect in its different states, as a bibliographical notice of the insect, or a practical suggestion and application of remedies, this Memoir cannot be otherwise considered than as one of the most perfect entomological illustrations which has ever yet appeared. The plates are exquisitely engraved, the whole of the anatomical figures being from the pencil of the author himself. Those plates which represent the various modes and stages of the attacks of the insects upon the vine, are very beautifully drawn and coloured. The whole work, in fact, affords a specimen of what an entomological treatise ought to be.

VERHANDELINGEN OVER DE NATUURLYKE geschiedenis der Nederlandsche overzeesche Bezittingen, &c. Fol.

FAUNA JAPONICA, sive Descriptio Animalium quæ in Itinere per Japoniam suscepto ann. 1823—1830, collegit Ph. Fr. De Siebold conjunctis studiis—W. De Haan, pro invertebrata elaborata. Lugd. Batav. Fol. Livr. 1—5.

THESE noble works are as honourable to their distinguished author and royal patron as they are worthy of the national institution from which they proceed, and of the subjects therein represented. Well, indeed, may the Museum of Leyden have arrived at its present high fame, when those who contributed to its stores perceive in how fitting a manner their contributions to the national treasures are made available to the scientific world. The work first above mentioned has already been noticed in the 1st volume of the *ARCANA* (p. 47,) wherein the first part of the entomological portion, comprising the genus *Papilio*, was shortly mentioned. A second portion has since been published devoted to the Orthopterous insects. In the introductory observations upon each family its entire generic distribution and structural peculiarities are detailed, so that the work cannot in this respect be considered as confined to the Orthoptera of the East. The text of this livraison is occupied with the families Blattidæ, Mantidæ, and Phasmidæ; a complete list of the Eastern species known to the author being given, together with the descriptions and figures of a great number of new ones, some of the latter being of great singularity. The plates are beautifully executed, and afford a splendid specimen of the capabilities of drawing on stone. Nothing equal to them has yet appeared in this country.

The second work above mentioned is devoted to the Brachyurous and Macrourous Crustacea, which are described and illustrated in a manner which leaves nothing to be desired, (if we except the want of colouring in the plates). The generical and subgenerical details are very elaborate, and all the species are represented of the natural size, several requiring double folio plates.



PLATE LVII.

DESCRIPTION OF SOME HOMOPTEROUS INSECTS
FROM THE EAST INDIES.

IN a former page (13) I gave a sketch of the arrangements of the species of the genus *Cicada*, proposed by Drs. Germar and Burmeister. Within the last few days has been published, M. Serville's volume on the Hemiptera, in the Suites à Buffon, in which, adopting the principle that every group of species logically constitutes a genus, we find the genus *Cicada* of modern authors broken up into the following genera :—

HOMOPTERA.

AUCHENORHYNCHI (Cicadaræ Latr.).1 Fam. *Stridulantes*;1 Tribe. *Reticelli*;

composed of the genera *POLYNEURA*, *CYSTOSOMA* and *HEMIDICTYA*. (See Arc. Ent. 1. pl. 24.)

2 Tribe *Octicelli*;1 Group *Tosenides* (Div. 1, Hemipteræ Burm.)

G. *TACUA*.—Type *Cicada speciosa* Wied. (*C. indica* Donovan. Java)

G. *TOSENA*.—Type *C. fasciata* Fab. (Java.)

? *C. Mearesiana*, Westw. Arc. E. pl. 25, fig. 1 (Himalaya.)

G. *PYCNA*.—Type *C. Strix*. Brullé. R. An. Ed. Crochard.
pl. 95. f. 1. (Madagascar.)

G. *GEANA*.—Type *C. Maculata* Fabr. (China.)

? *C. Dives*, Westw. Arc. Ent. pl. 25, fig. 2. (Sylhet.)

G. *HUECHYS*.—Type *C. Sanguinea*, De G. (China.)

C. Philæmata, Fabr. Germ. (China.)

C. Incarnata, Germ. (*Sanguinolenta*, Brullé.) Java.

G. *PLATYPLEURA*.—Type *C. Stridula* Linn. Fabr. (*Catenata*, Drury.) (*C. G. Hope*.)

Add *C. Capensis* L.—*C. decora* Germ.—*C. divisa*, Germ.—*C. hirtipennis* Germ.—*C. plumosa*, Germ.—*C. semiclara*, Germ.—*C. nobilis*, Germ.

G. *HEMISCIERA*.—Type *H. maculipennis*, Lap. (*versicolor*, Brullé; *sumptuosa*, Blanch.) Brazil.

G. *MOGANNIA*.—Type *M. illustrata** Serville, pl. 9, fig. 4. (Java.)

2 GROUP. *CICADIDES*.

With the base of the Elytra entirely membranous.

G. *ZAMMARA*.—Type *T. Tympanum*, F. (Brazil.)

Z. Strepens (*C. Tympanum*, Pal. B.)

G. *OXYPLEURA*.—Type *O. Clara*, Serville. (Africa.)

G. *TETTIGADES*.—Type *T. Chilensis*, Serv. (Chili.)

G. *CYCLOCHILA*.—Type *C. Australasie*, Donovan. (N. Holl.)

G. *DUNDUBIA*.—Type *C. Vaginata*, Fab. (Java.)

Add *C. chlorogaster*, Bdv.; *C. doryca*, Bdv., *Tettig. spinosa*, Fabr.

G. *TROPHA*.—Type *Tettig. saccata*, Fabr. (China.)

C. perulata Guér. (Port Jackson.)

* This is the *Cicada rostellata* De Haan, in litt. M. Serville's figure incorrectly represents the fore wings with a dark spot at the tips.

- G. FIDICINA.—Type *T. Mannifera*, Fabr. (Cayenne.)
C. Opalina, Germar. (Brazil.)
- G. CICADA.—Type *C. Fraxini*, C. Ormi.
- G. TIBICEN, *Latr.*—Type *T. Sanguinea*, F. (*C. hamatodes*, Oliv.)
- G. TETTIGOMYIA.—Type *T. Vespiformis*, Stoll. pl. 29, f. 173. (Africa.)
- G. CARINETA.—Type *C. Formosa* Germ. (*Polychroa* Perty). Brazil.
Tettig. villosa Fabr. (*C. G. Hope*.)

* These various genera are entirely established upon external characters, especially the relative size and form of the head, prothorax, and sonorous organs; and, as most of the types of these groups are well known species, I have not thought it necessary to detail their characters.

The two species of Cicada, represented in the accompanying plate, appear to enter into M. Serville's genus *Gæana*; the fore-wings being entirely opaque (Syn. art. 720), the sides of the prothorax not dilated (art. 726), and the front of the head rounded (art. 727.) There is, however, considerable diversity between these two species in the comparative breadth of the wings.

✓ *CICADA PULCHELLA*, *Westw.* (PLATE 57, fig. 1. ♀)
 (Royle's Himalaya, pl. 10, fig. 2.)

Nigra capite thoraceque sulphureo-maculatis, alarum dimidio basali sulphureo (in alis anticis fascia nigricanti obliqua diviso) apicibus flavido-fuscis, venis in partibus obscuris nigris.
 Expans. alar. unc. $3\frac{1}{4}$.

Habitat in Himalaya, &c. Mus. nostr. &c. ♂, ♀.

The abdomen beneath and on each side at the extremity is spotted with yellow, the fore-wings are broadly wrinkled as in *C. maculata*, and the drum-covers of the male are small, leaving the striated internal membrane broadly exposed.

✓ *CICADA 8-NOTATA*, *Westw.* (PLATE 57, fig. 2. ♀)

Nigra, capite fascia frontali et postica, fasciæque posticæ prothoracis metathoraceque flavidis, mesothorace lineis duabus irregularibus flavidis, abdomine sanguineo segmentis basalibus supra in medio nigro maculatis; alis anticis fusco-nigricantibus, singula maculis 4 albidis venisque tenuissimis rubris; alis posticis sanguineis nigro-limbatis.

Long. corp. lin. $11\frac{1}{2}$. Expans. alar. unc. 2, lin. 7.

Habitat in Assam. Mus. Westw. ♂, ♀.

I am indebted to Mr. Robinson for this interesting novelty, which is closely allied to *C. dives* W. figured in pl. 25 of this work, from Sylhet. Like that species, the present has rather narrow fore-wings, which have the surface very closely wrinkled with transverse furrows.

✓ GENUS.—CYRENE, *Westw.*

Corpus breve crassum abdomine compresso. Caput fronte conico longo, porrecto, apice acuto, supra ad latera carinatum, carinis ante apicem oblitteratis, postice ad prothoracem extensis. Oculi magni laterales subtus emarginati (fig. 3 a, 3 b). Ocelli nulli. Antennae parvae sub oculis insertae. Promusci mutilata. Prothorax mesothoracis longitudine, disco punctis duobus in medio impressus. Hemelytra coriacea opaca homogenea convexa lata, margine antico sinuato apice rotundato, angulo postico acuto; venis parum ramosis. Pedes breves robusti, tibiis posticis curvatis, intus versus apicem 3-spinosis (fig. 3 e). Abdomen apice truncato in lobos duos terminatum, appendiculo tenui erecto apice concavo instructum. (Fig. 3 d.)

The entire surface of the hemelytra of this new Fulgorideous genus is covered with an immense number of minute circular elevated areas, visible only under a lens. I have observed nothing similar in any other Fulgorideous insect. When at rest, the wings are carried almost perpendicularly, as in fig. 3 a.

✓ SPECIES UNICA.—CYRENE GUTTULATA, *Westw.* (Plate 57, fig. 3 & 3 a.)

Fusco-brunnea, proboscide picca, abdomine rufescenti, hemelytris guttulis nonnullis minutis albidis alterisque duobus, (in singulo) nigris, alis posticis fuscis. Long. corp. lin. 7. Expans. alar. lin. 14.

Habitat in Insula Sumatra. D. Raffles. In Mus. Soc. Zool. Lond.

✓ LYSTRA TRICOLOR. (Plate 57, fig. 4.)

Sanguinea glaberrima, prothoracis lobo antico mesothoraceque antice nigris, hemelytrorum dimidio basali (basi ipso livido excepto) stramineo nigro maculato; apicali brunneo, macula costali straminea; posticis rubris dimidio apicali fusco, pedibus castaneo-sanguineis. Long. corp. lin. 8. Expans. alar. unc. $2\frac{1}{2}$.

Habitat in Assam.

I am likewise indebted to Mr. Robinson for specimens of this beautiful addition to the Fulgoridæ, from a country which appears to be extremely rich in the species of that family, judging from the splendid insects described and figured by the Rev. F. W. Hope in the new Part of the Transactions of the Linnæan Society.

The present species has the face (fig. 4 a) convex and very glossy, nearly square, with the sides rather deeply impressed; the eyes are rather slightly emarginate beneath, leaving a small space in which the ocelli are placed. The disc of the head is excavated and marked with two ocelli-like tubercles placed wide apart. The four fore-tibiæ are slightly compressed, but are without any tendency to foliation.

The plant represented in the plate is *Roscoea purpurea*, from Upper Nepaul. (Smith, Exot. Bot.)

S U M M E R.

THEY may boast of the spring-time when flowers are the fairest,
 And birds sing by thousands on every green tree ;
 They may call it the loveliest, the greenest, the rarest,—
 But the summer's the season that's dearest to me !

For the brightness of sunshine ; the depth of the shadows ;
 The crystal of waters ; the fullness of green ;
 And the rich flowery growth of the old pasture meadows
 In the glory of summer can only be seen.

Oh the joy of the greenwood ! I love to be in it,
 And list to the hum of the never-still bees ;
 And to hear the sweet voice of the old mother linnet,
 Calling unto her young 'mong the leaves of the trees !

To see the red squirrel frisk hither and thither,
 And the water-rat plunging about in his mirth,
 And the thousand small lives that the warm summer weather
 Calls forth to rejoice on the bountiful earth !

Then the mountains, how fair ! to the blue vault of heaven
 Towering up in the sunshine, and drinking the light,
 While adown their deep chasms, all splintered and riven,
 Fall the far-gleaming cataracts silvery white !

Oh the beautiful flowers, all colours combining,
 The larkspur, the pink, and the sweet mignonette,
 And the blue fleur-de-lis, in the warm sunlight shining,
 As if grains of gold in its petals were set !

Yes, the summer,—the radiant summer's the fairest,
 For greenwoods and mountains, for meadows and bowers,
 For waters, and fruits, and for flowers the rarest,
 And for bright shining butterflies, lovely as flowers !

MARY HOWITT.

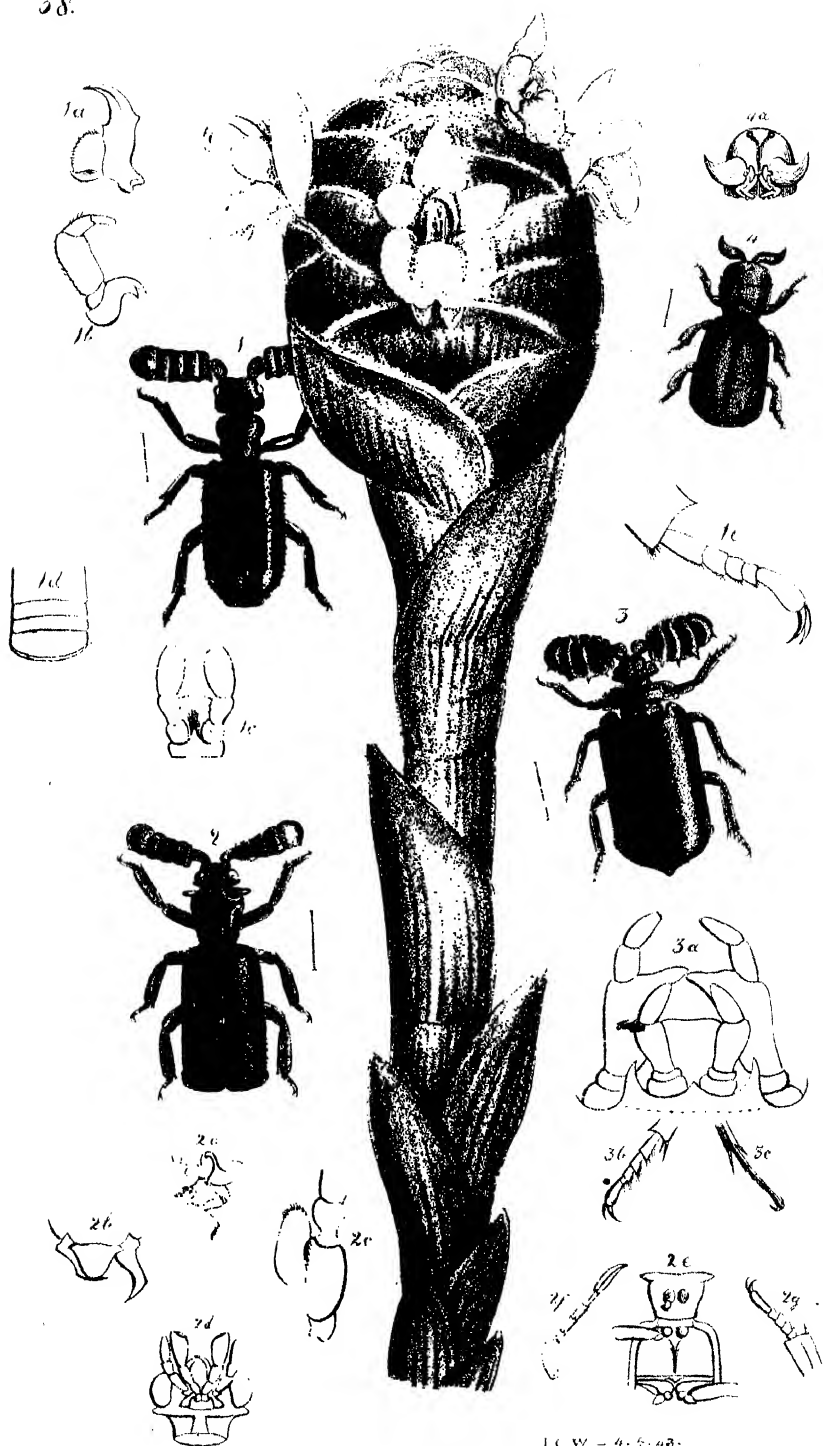


PLATE LVIII.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART II.

THE three following species, constituting the like number of genera, form a peculiar section in this singular family, possessing, in the number of joints in their antennæ, an intermediate character between the Cerapteri and more typical Paussi and Platyrhopali.

GENUS.—CERATODERUS, *Westwood*.

(PROCEEDINGS LINN. SOC., JUNE 1, 1841.)

(Plate 58, fig. 1.)

Corpus oblongum depressum punctatum. Caput transverso-quadratum, angulis rotundatis, supra planiusculum, postice collo instructum, angulis pone oculos rotundatis, disco inter oculos bi-impressum; antennæ quasi 6-articulatæ; articulo 1mo subcylindrico, 2—5 (intermediis) transversis planis, ultimo semiorbiculari. Mandibulæ (fig. 1 *a*) falcatæ, apice acutæ, margine externo et interno in medio angulatis, basique intus lobo semipellucido coriaceo instructæ. Maxillæ minutæ (fig. 1 *b*) planæ corneæ apice acutæ, curvatæ, intus apicem dente acuto armatæ. Palpi maxillares 4-articulati, articulo 1mo minuto, 2do magno ovato, 3tio 4toque minoribus gracilioribus subcylindricis. Mentum brevissimum (fig. 1 *c*) medio acutè producto. Labium integrum corneum ad apicem articuli 2di palporum labialium protensum. Palpi labiales crassi articulo ultimo præcedente haud multo majori, ovato, apice truncato. Prothorax capite vix latior, cordato-truncatus, trans medium lineæ impressa notatus. Scutellum minutum. Elytra oblongo-ovata depressa, angulis externis apicalibus tuberculo ordinario munitis. Pedes breviusculi; femoribus tibiisque compressis, his ad apicem setigeris (fig. 1 *e*) haud calcaratis; tarsis distincte 5-articulatis, articulo basali sequenti longiore; 4to præcedenti parum minori. Ungues magni acuti. Abdomen (fig. 1 *d*) e segmentis 4 constans, duobus intermediis brevibus.

SPECIES UNICA.—*Ceratoderus bifasciatus*. (Plate 58, fig. 1.) *C. ferrugineus*; capite, antennarum apice, fascia lata clytrorum, femoribus tibiisque nigra. Long. corp. lin. 3.

Habitat in India Orientali. In Mus. Imp. Vindob., et Hope.

SYN.—*Paussus bifasciatus*, Kollar in Ann. Wien. Mus., 1836, t. 31, fig. 7 *a b*; Westw. in Trans. Ent. Soc. ii. p. 91, pl. 10, fig. 3; Westw. in Proceed. Linn. Soc., ut supra. Caput nigrum, nitidum sed remote punctatum, impressionibus duabus hæviorebus in medio lineaque tenui impressa longitudinali in verticem, oculi laterales vix prominuli rotundati nigro-obscuri; instrumenta cibaria ferruginea. Antennæ ferrugineæ punctatæ articulis duobus apicalibus nigris. Prothorax ferrugineus nitidus, lineola transversa media profunde impressa, altera longitudinali minus profunda nec marginem anticum neque posticum attingente; hæ lineolæ crucem in medio thoracis representant. Elytra thoracis parte antica latoria, oblonga-quadrangula, basi ipsa depressa, prothorace remota subemarginata, lateribus inflexis immarginatis, apice truncata, et ad angulos tuberculo ferrugineo instructa; abdomine breviora convexiuscula ferruginea nitida obsoletissime punctata, fascia lata mediana nigra. Corpus subtus ferrugineum, nitidum punctatum. Pedes nigri omnes subæquales tibiis compressis femoribus basi tarsisque totis ferrugineis.

This pretty species was described by Professor Kollar from a unique specimen in the Vienna Museum, brought from India by Fitchel many years ago, and which is, I apprehend, the identical insect mentioned by Donovan in his Insects of New Holland, as an undescribed species of Cerapterus. My drawing is made from a

in sending his unique specimen of it from Paris for my examination, I was first made acquainted with this interesting genus. My collection has subsequently been enriched, by the liberality of Mr. Westermann, of Copenhagen, with a specimen, from which the present figure is taken, and which may possibly be of a different sex to the specimen which I figured in the Transactions of the Entomological Society of London. (Vol. II. pl. ix. fig. 8.)

GENUS *HYLOTORUS*, *Dalman*. (Plate 58, fig. 4.)

Corpus subdepressum breve, capite lato in thoracem postice fere ad oculos immerso, elytris thorace paullo latoribus apice truncatis. Caput magnum convexum rotundatum collo nullo, fovea magna ovata, impressione profunda inter oculos et antennarum basin pro receptione clavæ antennarum (fig. 4 a), oculis vel tuberculis duobus verticalibus mamillatis. Trophi nondum descripti. Oculi parvi. Antennæ capite vix longiores articulo 1mo. brevi in lato medio emarginato, 2do. parvo subgloboso, emarginaturæ prioris inserto, ultimo magno (magnitudine capitis dimidio) ovato lanceolato, compresso subtus vel posterius convexo, supra vel antè concavo, apice acuto antrorsum flexo. Prothorax brevis, transversus antice multo lator, capiti æqualis et illud ambiens basi apiceque truncatus, supra inæqualis præsertim pone medium. Scutellum mediocriter triangulare. Elytra thoracis antico vix latoria oblongo-quadrata, basi ipsa transversim impressa, lateribus inflexo-sinuata apice truncata anum occultantia; supra convexa. Alæ amplæ. Abdomen breve retusum. Pedes breves validi femoribus tibiisque valde compressis dilatatis, tarsis brevibus cylindricis ut videtur 4-articulatis, primis tribus brevissimis coarctatis pilosis, 4to longiore nudo, unguibus parvis arcuatis.

The detailed specific description of *Paussus bucephalus*, given by Gyllenhal in the Appendix to Schonherr's *Synonymia Insectorum* and the accompanying figure (copied in my plate), together with Dalman's observations on the species in the *Analecta Entomologica*, are the only materials which have hitherto been published, *ex visu*, of the type of this genus, which differs in several respects (such as the large size of the head immersed into the thoracic cavity, the small eyes, and existence of ocelli) from the other species of the family; indeed, Mr. MacLeay considers that it does not belong thereto. Its general habit appears to me, on the contrary, to be decidedly Paussideous, agreeing with several of the forms of the family in its antennæ, sub-bipartite thorax, short broad feet, colours, and truncated elytra.

SPECIES UNICA.—*Hylоторus Bucephalus*. (Plate 58, fig. 4.) Pallide testaceus glaber, oculis nigris, thorace postice transverse-sulcato.

SYN.—*Paussus Bucephalus*, Gyll. in Sch. *Syn. Ins.* i. p. 3, App. p. 15, tab. 6, fig. 2 and 2 a; *Dalm. Anal. Ent.* p. 103 (*Hylоторus B.*) *Latr. Règne An.*, 2d Edit., v. p. 93; *Westw. Trans. Linn. Soc.*, vol. 16, p. 654.

Habitat in Sierra Leone, Africa. D. Afzelius. Mus. Schonherr.

Long. corp. (c fig. Schonh.) lin. 2½.

Magnitudine *Anobii mollis* et colore similis, pallide testaceus glaber, nitidus. Caput fronte lineæ impressa, postice bifida, ramulis in tuberculis duobus vel oculis desinentibus. Oculi nigri; antennæ corpore concolores. Prothorax supra inæqualis paullo pone medium striga angulata valde profunda et antice posticeque aliis obsoletissimis transversim impressis. Scutellum concolor. Elytra testacea nitida; lævia. Alæ fusco hyalinæ. Corpus subtus testaceum punctulatum. Pedes pallide testacei.

The curious plant represented in the plate is the broad-leaved ginger of the East Indies, *Amomum Zerumbet* of Linnæus.



60.



PLATES LIX, AND LX.

DESCRIPTION OF A NEW GENUS OF PAPILIONIDÆ.

THE recent arrival in this country of specimens of a new and very decided genus in the family Papilionidæ (a group of comparatively small extent as to generic forms), is an event of too much interest, in respect to a work, of which so many plates have been devoted to the illustration of that family, to render any apology necessary for giving coloured figures of these new and splendid insects in the "Arcana Entomologica." I should not, however, have done this, had I not been informed that it was the intention of the Linneæan Society to publish uncoloured representations of them, accompanying Mr. Hope's Memoir, in which they have been described. In this Memoir Mr. Hope has proposed for them the generic name of

TEINOPALPUS,

in allusion to the porrected palpi, a character in which they differ from all the other Papilionidæ, and in which respect they resemble some of the Nymphalidæ. Not only are the palpi porrected, but the front of the head is conically produced and clothed with very delicate hairs. The eyes are large and lateral, the antennæ rather short, with the club gradually formed.

The thorax is very robust, evidently proving the insects to be more powerful on the wing than the other Papilionidæ; the fore-wings are large and triangular, with the tips acute; the apical margin in one sex more falcate than in the other. The hind-wings are deeply incised along the margin, the incisions becoming tails in one sex; besides which they are furnished with a long narrow tail common to both sexes in the ordinary position. The fore-wings have the discoidal cell closed at the tip, and emitting the four branches which are the absolute character of the Papilionidæ; whilst the posterior branch of the subcostal vein (which ordinarily branches off from the middle of the transverse vein which closes the cell at its extremity) here arises close to the emission of the subcostal vein itself from the anterior angle of this cell. In consequence of this arrangement, it is necessary that the fourth branch of the median vein should be more curved than in the other butterflies of this

family. In the hind-wings the veins are arranged as in *Papilio*. The fore-feet are perfect, the tibiæ being calcarated at the middle on the inside. The two spines at the extremity of the four hind tibiæ are short; indeed the legs are comparatively shorter than in most of the species of *Papilio*.

It is scarcely questionable that the two specimens represented in the accompanying plates, are not the sexes of one species for which the name of *T. imperialis* should be retained, as being that proposed for the male insect (plate 59). I regret that in consequence of Captain Parry (to whom these insects belong, and to whose kindness I am indebted for permission to figure them) possessing but single specimens of each sex, I have been prevented from determining the precise structure of the sexual organs, which differ from all those figured by M. De Haan. In one sex, however, they are furnished with a horny piece, broad at the base, received into a kind of anal pouch, (see outline figures at foot of pl. 59), whilst in the other they are composed externally of two flat oval pilose lobes, (see outline figures in pl. 60.)

TEINOPALPUS IMPERIALIS, *Hope*. (Plate 59.)

Alis supra viridi-pulverosissimis striga tenui communi, ante medium, in anticis nigra, extus flavo marginata nebulisque dualibus obscurioribus subapicalibus; posticis macula magna flava nigro-cincta in lineam arcuatum albam desinente squamulis cinereis lunulisque marginalibus flavis viridibusque; omnibus subtus aurantiis nigro-striatis, portione basali viridi, posticarum apicibus nigro, griseo, viridique variis.

Expans. alar. unc. 3, lin. 10.

Habitat in India Orientali. Sylhet. In Mus. D. Parry.

TEINOPALPUS PARRYÆ, *Hope*. (Plate 60.)

Affinis præcedenti at major, alis obscurioribus, omnibus basi viridibus; anticis minus falcatis, nebulis cinereis nigrisque transversim strigatis; posticis bicaudatis, plaga magna mediana pallide lutea nigro pulverosa, strigaeque undulata nigra extus griseo pulverosa, lunulisque marginalibus viridibus flavisque ornatis, angulo anali læte flavo.

Expans. alar. unc. 4; lin. 7.

Habitat in India Orientali. Sylhet. In Mus. D. Parry.

This supposed species, if indeed it be not the female of the preceding, has been named by Mr. Hope, in honour of the lady of Captain Parry. Dr. Horsfield has shown me a specimen of it in the collection of the East India Company, and Mr. A. White informs me that there are specimens of it in a collection at Edinburgh.

The plant represented in pl. 59 is the Nepalese *Epidendrum præcox*, and that in pl. 60 is *Orchis gigantea*, from the same country, both first described in Smith's *Exotic Botany*.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS, &c.

(No. XV.)

SUITES A' BUFFON, FORMANT, AVEC LES ŒUVRES DE CET AUTEUR, UN COURS
COMPLET D'HISTOIRE NATURELLE, 8vo, with Plates.

CRUSTACÉS. Par M. Milne-Edwards. Tom. 1, 1834 ; tom. 2, 1837 ; tom. 3, 1840, (completed).

APTÈRES. Par M. le Baron Walckenaer. Toms. 1 and 2, 1837, (Genus *Aranea* Linn. completed in these two volumes.)

INTRODUCTION À L'ENTOMOLOGIE. Par M. Th. Lacordaire. Tom. 1, 1834 ; tom. 2, 1838 (completed.)

HYMÉNOPTÈRES. Par M. le Comte Amédée Lepelletier de Saint-Fargeau. Tom. 1, 1836, (*Social Formidæ, Vespidae, and Apidae*). Tom. 2, 1841, (*Solitary Apidae, Parasitic Apidae, and Solitary Vespidae*).

ORTHOPTÈRES. Par M. Audinet Serville, 1839. 1 tom. (completed).

LÉPIDOPTÈRES. Par M. le Doct. Boisduval. Tom. 1, 1838 (*Papilionides and Pierides* only).

DIPTÈRES. Par M. Macquart. Tom. 1, 1834 ; tom. 2, 1835 (completed).

NEUROPTÈRES. Par M. Rambur. 1 tom. 1842 (completed).

HEMIPTÈRES. Par Messrs. C. J. B. Amyot and Audinet Serville. 1 tom. 1843 (completed).

WHEN will the state of science in England allow of the publication of such a series of volumes, each averaging upwards of 600 pages, as are contained in the preceding list? And yet several portions of the series still remain incomplete; whilst of the great order *Coleoptera*, no part has yet appeared, and of the *Lepidoptera* only a very slight portion. It was surely a most excellent idea to unite the talents of so many excellent authors in one general work, whilst each was left so entirely uncontrolled, as to the manner in which the subject of his portion was to be worked out, that the series possesses all the advantages of separate treatises. How many excellent general works have been spoiled by the various contributors being tied down to some plan settled by an editor perhaps ignorant of the subject! Still, however, there are some points on which it would have been serviceable to have imposed uniformity, as, for instance, in the employment of short Latin characters prefixed to each species, the addition of generic tables at the head of each family, &c. As it is, we have the specific character sometimes at great length (which causes a terrible waste of time in ascertaining species) and this sometimes

in French and sometimes both in French and Latin (whole pages of Latin descriptions, followed by a verbal translation in French), whilst sometimes the description is confined to a few lines. The only author who has followed the good old Linnæan plan of giving a short Latin specific character at the head of the description of each species is M. Rambur, and even he has confined this to the first half of his volume, the remainder having only French descriptions.

The last published volume is that on the Hemiptera, by Messrs. Amyot and Serville, in which we find fresh cause for desiring more uniformity in these works. The latter author has been so long and advantageously known as an author devoted to the study of the mandibulated and haustellated Hemiptera of Linnæus, and especially by the publication of his volume on the Orthoptera in this series, that when we perceive the alterations in the style exhibited by the present volume, as contrasted with that last mentioned, we can but lament that an association with another author has evidently led to such modifications.

The first matter treated upon in the introduction to the volume is the nature of Genera; and here we find the authors (perhaps unconsciously) adopting the argument made use of by Mr. Vigers in the Zoological Journal, namely, that "un genre n'est pas autre chose qu'une division méthodique venant immédiatement au-dessus du dernier degré de division, qui est l'espèce—tout ce qui est bon à faire une subdivision de genre, est bon à faire un genre; il convient de lui donner un nom appelé générique." p. vii. Hence every section and sub-section proposed amongst the Haustellated Hemiptera is here raised to the rank of a genus—the Linnæan genus *Cimex* being cut up into 340 genera, upwards of 150 of which are now first proposed and named. The authors strongly insist that such a plan is absolutely logical, but in one respect the result of their arrangement is anything but uniform; for instance, the genera of Pentatomides or Reduviides are distinguished from each other by characters of very slight importance, whereas *Acanthia*, *Hebrus*, *Hydrometra* or *Leptopus*, notwithstanding the weight of their characters, are only regarded as groups of equal value, that (is as genera,) with these trivial groups. To maintain a series of gradational characters, and yet to deny it virtually by calling all these groups by one name, is not logical; thus *Hydrometra*, *Acanthia* or *Hebrus*, ought not, on this principle, to be called genera, but tribes,

and *Leptopus* a sub-tribe. I have elsewhere* so fully entered on the propriety of adopting subgeneric names, that I shall not here do more than thus refer to the plan.

This multiplicity of new genera has led to another inconvenience. In order to avoid the possibility of using generic names formed from the Greek, which had been used before, the authors have had recourse to the Arabic, Chinese, Sanscrit, and Hebrew, (in opposition to the Linnæan and Fabrician canons; †) the characters of all which languages are scattered over the pages, it being the plan of the authors to give the derivations of each generic name adopted throughout the work: occasionally when this has not been given by the original proposer of a name, they have failed in attaching the correct signification to it. Thus my genus *Deroploa*, distinguished by having its prothorax armed with two very thick spines (from the Greek *Δερη* and *ὄπλα*), is given with the derivation of the "neck" and "navigation," with a remark on its want of sense. So my name *Metapodius*, applied to a genus in which the *metathoracic feet* are very large, is said to be derived from the *toothed front* of the head (*Metopodus*), and it is added, that I have written "*Metapodius par erreur, sans doute,*" whilst the names which I have given to the genera established by me allied to *Derbe*, (and to which, following the plan set by Fabricius of giving to various Homopterous genera the names of towns in the Holy Land, *e. g.* *Derbe*‡ and *Lystra*, I had applied the names of Zeugma, Patara, Phenice, &c.), are set down by our authors as "*noms de fantaisie, formés sans règles grammaticales et purement au hasard.*"

In the last place, it is to be regretted that the various contributors to this series have not adopted a uniform plan in treating the species; whilst some, as Messrs. Edwards and Boisduval, have made their works a complete descriptive "*species insectorum,*" others have given only those species which they happen to have seen in nature, either entirely omitting all notice of the genera and species described by others, or giving only references to them.

* Ent. Text Book, p. 59. Trans. Ent. Soc. iii. p. 29.

† "*Nomina generica quæ ex græca vel latina lingua radicem non habent rejicienda sunt.*"—Linn. Phil. Bot., p. 163.

"*Nomina barbara quæ quidam in Eutomologia in novissimis temporibus introduxerunt omnino rejicienda, quem nullo modo intelligantur et difficile pronuncientur.*"—Fabr. Phil. Ent., p. 109.

‡ The authors state that the etymology of the name *Derbe* is "*inconnue.*" Had they been aware of its true signification, they would have possessed the clue to the etymology of my generic names allied to that genus.

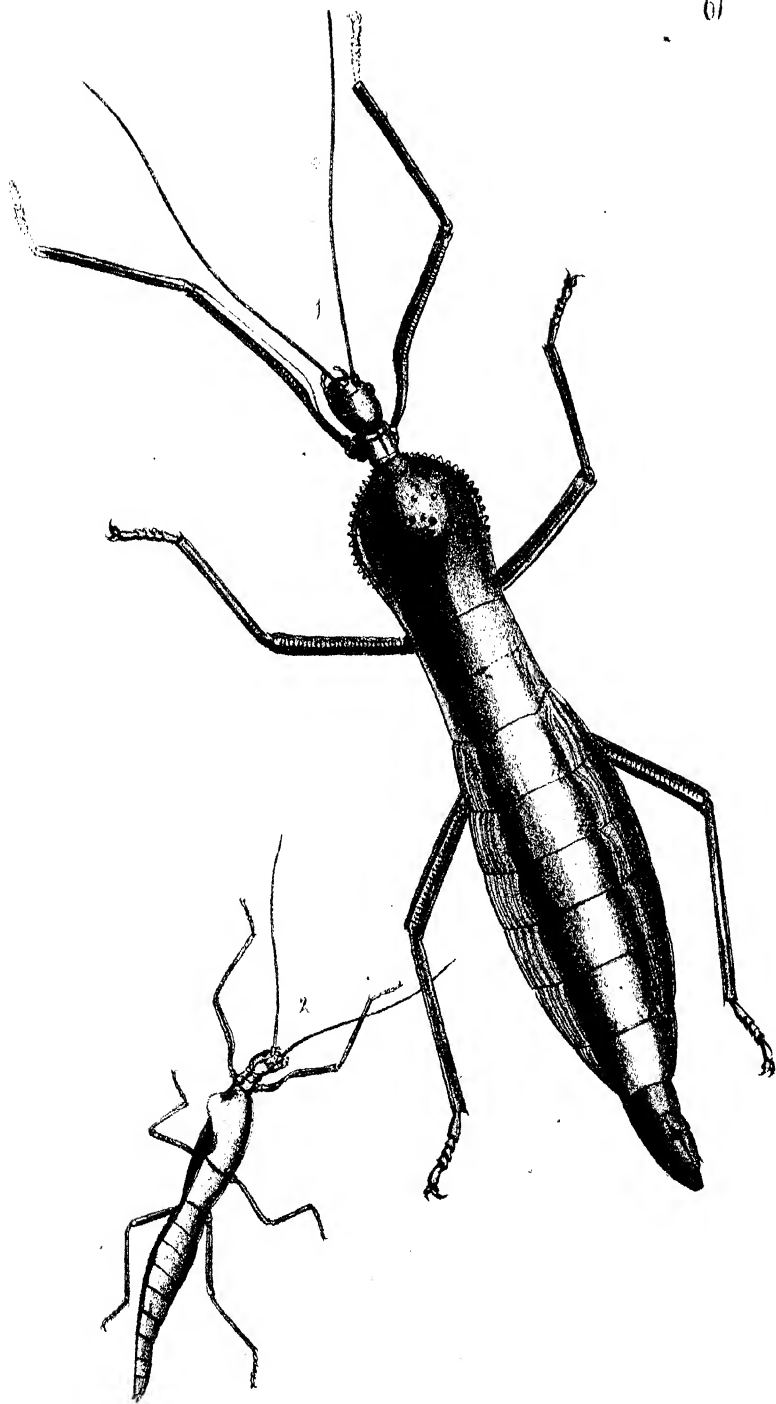


PLATE LXI.

ILLUSTRATIONS OF TWO SPECIES OF SPECTRE INSECTS.

In the first volume of this work (plate 8) a representation was given of an insect from my own collection, belonging to the family Phasmodæ, to which, upon the information of Dr. Burmeister, the name of *Phasma* (*Craspedonia*) *gibbosa** was given, with a reference to his Handb. d. Ent. 2, 575, and with the habitat of "Brasilia, teste Burmeistero."

It appears, however, from Dr. Erichson's Bericht for 1841, p. 72, that the insect figured by me is distinct from Burmeister's *D. gibbosa*, described from the Berlin Cabinet, and that, instead of being Brazilian, it is an African species. Dr. Erichson doubts the correctness of my description of the rudimental wing-covers and wings, as well as of the four-jointed anterior tarsi. My specimen is, however, fortunately, perfect (except in wanting a few of the terminal joints of one of the antennæ) and possesses only four joints to each of the fore-tarsi, and the rudimental tegmina are perfectly distinct, and *entirely free*, and capable of being elevated by introducing a pin beneath them, being about one-sixth part of an inch long; the winglet, although very much more minute, has the *outer edge free*.

It becomes, therefore, necessary to apply a new specific name to the insect figured in Vol. I., and for which, in allusion to the regularly-curved margins of the abdominal segments, the name of

DIAPHERODES (CRASPEDONIA) UNDULATA, *W.*, (Vol. I., Pl. viii.)

may be applied. It seems to approach the *Cyphocrana*? *punctipes*, Serville (Orthopt. p. 239), which is also a native of the coast of Africa, but differs in the spines of the thorax and feet, the under surface of the thoracic segments in my insect being perfectly smooth and free from spines.

DIAPHERODES (CRANIDIUM) SERRICOLLIS, *Westw.* (Plate 61, fig. 1.)

D. viridis, glabra, capite integro gibbo; mesothoracis dorso et lateribus mesosternoque longitudinaliter obtuse spinosis; abdomine dilatato, dilatatione tenui, continua, striata, pedibus omnibus gracilibus inermibus, tegminibus alisque nullis.

♀ Long. corp. unc. 4½. Latit. abdominis unc. 1.

Habitat —? In Mus. Hope.

* "*D. gibbosa*; capite integro gibbo; thoracis margine mesonotique dorso obtuse spinoso; (♂ ?); ♀ alis nullis abdomine dilatato distinctè marginato. Long. corp. 5" 6". Brasilia, 2 ♀ in Mus. reg. Berol."—Burm. l. c.

The large, oval, posteriorly truncate, and very gibbose mesonotum measures $\frac{3}{8}$ of an inch in length, and has the sides armed with a row of obtuse spines, which become obliterated towards the hind part; within this row there are also a few much smaller spines, forming a parallel series, towards the front part; the centre of the elevated part is armed with about a dozen raised tubercles, and there are also two smaller ones on the disc towards the fore margin; the underside of the mesothorax is armed with a double row of these tubercles; the metathorax is nearly square, of equal breadth with the hind part of the mesothorax; and the five basal segments of the abdomen are dilated into an elongate oval form, the middle portion of each being convex, but the sides forming a very thin margin, along which run five slender, longitudinal ribs, which I presume to be veins. The seventh segment beneath is formed into a boat-shaped appendage, extending beyond the ninth dorsal plate, longitudinally carinated, and divided by a slit into two parts, for a considerable distance along its apical half. The ninth dorsal segment is furnished at each side with a small conical appendage, and within the boat-shaped plate are enclosed two long and slender, flattened setæ, extending as far as the tip of the keel. The feet are all quite simple, and destitute of teeth or spines, and are comparatively slender. The general colour is pale green, but the head and pro- and meso-thorax, as well as the feet and anal apparatus, are changed to a pale brown.

Mr. Hope's unique specimen of this insect is unfortunately destitute of any indication of the habitat of the species. It appears to be closely allied to Dr. Burmeister's *D. gibbosa*, above-mentioned, but the marginal spines are confined to the mesothorax, not extending along the entire thorax, as described by Burmeister.

DIAPHERODES (CRANIDIUM) PUMILIO. (Plate 61, fig. 2.)

D. lutescens (viridis?) capite inermi mesothoracis lateribus sensim dilatatis vix serrulatis, disco in carinam mediam valde elevato; abdomine elongato vix dilatato supra carinato, apice acuminato; pedibus gracilibus simplicibus, alis nullis; ♀.

Long. corp. unc. 2. Habitat in Africa tropicali? In Mus. Bristol Philos. Institution.

The singular, almost semicircularly elevated carina along the middle of the mesonotum, at once distinguishes this insect from all other Phasmidæ. It appears to be congeneric with the species last above described, although destitute of any lateral dilatation. From the development of the sexual apparatus, which is nearly similar to that of *D. serricollis*, I consider the specimen not to be in an immature state.



PLATE LXII.

 DESCRIPTIONS OF SOME NEW SPECIES OF SOOTHSAYERS.
 (MANTIDÆ.)

 PHYLLOCRANIA INSIGNIS, *Westw.* (Plate 62, fig. 1.)

P. luteo-fusca, tegminibus olivaceo-fuscis, basi, vittaque obliqua media albidis, alarum angulo apicali producto, hoc areaque anali fuscis reliqua parte alarum fulvescente fusco irrorata, foliolis prothoracis et pedum posticorum albido et olivaceo variis.

Long. corp. (cornu capitis incluso) unc. 2½.

Habitat in Sierra Leone. In Mus. Britt. et D. Hope.

This insect appears to be specifically distinct from *Ph. paradoxa*, of Burmeister*; it agrees, however, with it in its remarkable structural peculiarities, namely, the singular, elongated, narrow, leaf-like appendage of the head, the dilated sides of the prothorax, and the leaflets of the four hind femora and tibiæ. *Mantis Diana*, of Stoll (fig. 100), and the *Empusæ*, agree with *Phyllocrania* in the produced head, but the latter have pectinated antennæ in the males, whereas all the specimens of the species above described, which I have hitherto seen (one belonging to the Rev. F. W. Hope, and two discoloured ones in the British Museum collection), possess very slender, simple antennæ. Of these specimens two agree in having a shorter appendage to the head, one of which is represented in my plate, whereas the other has the head produced into a much longer, slenderer, and more curved horn (fig. 1 a). This last, I apprehend, is the male, and the other two females. In all other external characters, however, they agree together. *Mantis (Blepharis) Kuhlii* of De Haan (*Bijdragen*, &c., plate 18, fig. 3), seems in general form, dilated abdomen, and foliated hind femora, to approach nearer to *Phyllocrania* than to *Blepharis mendica*.

 MANTIS METALLICA, *Westw.* (Plate 62, fig. 3.)

M. chalybea, nitida, capitis plaga verticali, et pronoto antice et postice flavis, tegminibus fulvis venis viridibus, alis ad angulum analem late fuscis.

Long. corp. lin. 14. Expans. tegmin. unc. 2.

Inhabits Sylhet in the East Indies. In the collection of the Rev. F. W. Hope.

With the exception of *Metalliticus splendidus*†, and the present species, I am not acquainted with any metallic Mantideous insect. The body and legs are of a bright steel blue, except the middle of the disc of the head, a rounded patch near the fore-margin of the pronotum, and a larger posterior spot, which are of a rich yellow

* *Ph. fulvo-viridis*, elytris macula basali rhombea, vittaque obliqua post medium pallide testaceis, rosco-micantibus; alis fusco tessellatis. Long. corp. 1½". Habitat apud Cap. Bon. Spei. Handb. d. Ent. Orthoptera, p. 549.

† Westwood, in *Zoolog. Journ.*, vol. v., p. 442, pl. 22, fig. 1. I also figured a brilliant and rare variety of the same insect in the British *Cyclopædia of Natural Hist.*, Orthopterous Insects, fig. med. dext.

Syn.—*Mantis chalybea*, Serville, *H. n. Orth.*, p. 202.

colour, and the base of the first joint of the anterior tarsi, which is white. The prothorax is rather short, and dilated at the sides over the base of the fore-feet, as is also the hinder margin; the abdomen also has the sides dilated. The tegmina are destitute of the small horny patch, so conspicuous in some of the species of the genus; the hind wings are fulvous-brown, with the anal angle broadly brown, the veins in the latter part being yellow; the posterior femora and tibiae being simple. The entire body beneath is also blue-black.

STENOPHYLLA, Westw.

Corpus elongatum valde angustum. Caput cornu porrecto apice truncatum spinaque subbifida utrinque ante oculos armatum. Oculi ovals. Antennae subgraciles. Prothorax vix meso- et meta-thorace longior, supra insertionem pedum anticorum dilatatus. Abdomen longum gracile parallelum segmentis apicalibus brevissimis parum latoribus, ultimo supra conico, subtus in spinis duabus brevibus divaricatis desinente; cerci anales valde elongati (prothorace paullo longiores), compressi ad basin articulatis, apicibus parum emarginatis. Pedes antici elongati, 4 postici breves femoribus foliatis tibiisque extus folio rudimentali instructis. Tegmina et alae posticae perfecta angusta.

The singular head and tails of the insect represented in figure 2 at once distinguish it from every other insect in the present family. Elongated tails are indeed found especially in *Tarachodes Perloides*, a new insect, described by Dr. Burmeister, from the Cape of Good Hope; but the head and feet in that genus are quite unlike those of the present species, and the tails themselves are described by Burmeister as threads, “*Fäden*,” whereas they are flat and thin in the present insect, the basal portion alone being articulated. This divarication from the normal, small, conical, articulated form of these appendages is seen in but very few other species of the family, and in none to the extent here exhibited. The *Toxodera denticulata* of Serville, from Java*, has them broad and foliaceous, but comparatively short, and from this character M. Serville has assumed a relationship with the Phasmidæ. The species figured in my first volume, pl. 41, under the name of *Toxodera (Heterochaeta) tenuipes*, possesses similarly dilated, foliaceous appendages, as do also *Vates Ashmolianus*†, W., a native of the East Indies, of which the characters are given in a note below, and the Australian *Mantis latistylus* of Serville.

STENOPHYLLA CORNIGERA, Westw. (Plate 62, fig. 2.)

St. fusca, brunneo varia, tegminibus basi pallide luteis striga obliqua fusca, costa venisque longitudinalibus fusco-guttatis; alis basi fuscis violaceo micantibus, venis transversis, in dimidio basali alarum costaque fuscis.

Long. corp. unc. 1½. Expans. tegminum unc. 2½.

Habitat in Brasilia interiori. In Mus. D. Hope.

The plant represented in the plate is the elegant Brazilian *Manettia cordifolia* of Von Martius.

* Ann. Soc. Ent. de France, tom. vi., p. 25, pl. 2: and Hist. n. Orth., p. 169, pl. 5.

† *VATES ASHMOLIANUS*, Westw. (Annals of Nat. Hist., Dec. 1841), fuscus capitis vertice

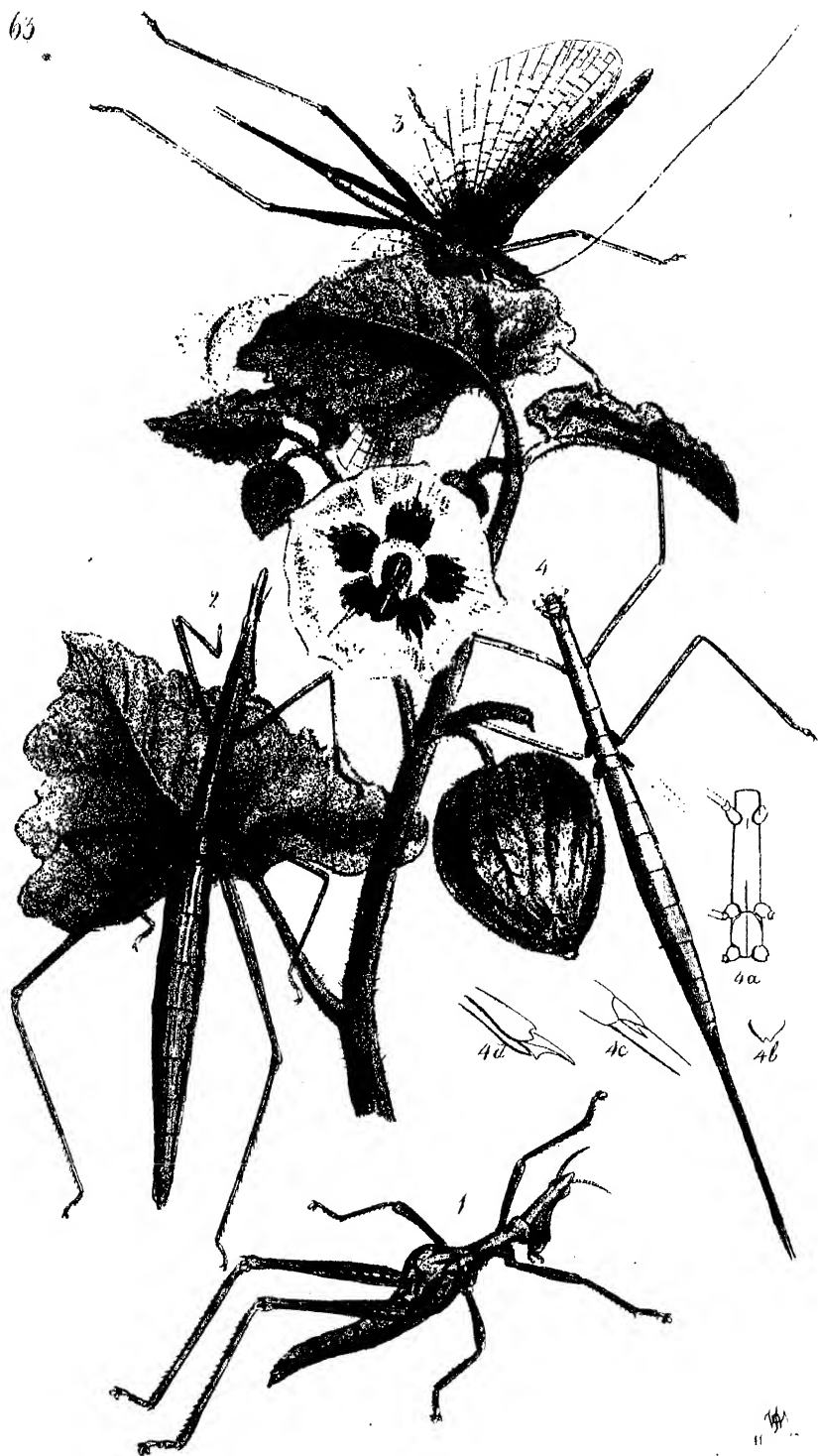


PLATE LXIII.

DESCRIPTIONS OF SOME ORTHOPTEROUS INSECTS BELONGING
TO THE SECTION SALTATORIA.PROSCOPIA OCCIDENTALIS. *Westw.*

(Plate 63, fig. 1.)

P. fulva, nigro fuscoque varia, rugoso-punctata, capito ante oculos conico, prothorace capitis longitudine margine antico dilatato, metathorace valde tumido. Long. corp. unc. $1\frac{1}{4}$. ♂, unc. 2. ♀.

Habitat. Valparaiso, Chili. In Mus. Hope, and Mus. Britt.

THIS curious species is more robust than the generality of the insects of this singular genus. The head of the male has the sides rather curved and rugose, but in the female they are straight, forming with the part in front of the eyes an elongated cone; in the latter sex it is more rugose than in the male. The antennæ of both sexes are 9-jointed*: they are slightly thickened in the middle, the tip being slenderest; they are inserted in the under-side of the head between the front part of the eyes. The prothorax is narrower than the head, its narrowest part being before the place of insertion of the fore-feet; it is transversely rugose, and has the hinder portion nearly quadrate. The meso- and meta-thorax are swollen into a rounded hump, much broader than the rest of the body in the male, the abdomen in that sex being narrowed. The specimens before me have, however, been taken out of spirits, and are shrunk in the base of the latter part, so that I cannot speak with certainty on its form, or as to the shape of the meso- and meta-thorax in the female. The feet are comparatively robust, and the ungues are very much dilated at the base, being furnished with an appendage almost as large as the pulvilli; the posterior femora are striated. I do not perceive in this species the difference in the number of the abdominal segments of the opposite sexes pointed out by M. Brullé; on the contrary, in both I find the same typical structure, namely, seven basal segments of equal size, both on the dorsal and ventral surface, followed by two very short arcs, cut off obliquely at the sides on the dorsal surface, representing the 8th and 9th dorsal segments, whilst the 8th ventral arc is dilated into

rotundato antennis gracillimis, prothorace longissimo (long. unc. $1\frac{1}{2}$) angusto lateribus serrulatis; tegminibus et alis abdomen haud tegentibus, illis pallidis griseo et fusco parum variis nubila fusca versus basin, venisque nigro strigatis; alis hyalinis, costa maculisque nubilaque versus basin brunneis; cercis analis latis foliaceis, pedibus 4 posticis brevibus femoribus fere ad apicem 3-foliatis tibiisque ante medium supra parum foliatis. Long. corp. unc. $4\frac{1}{2}$. Habitat in India orientali. In Mus. Ashmol. Oxon. et D. Hope.

* Drs. Klug and Burmeister described the antennæ of the males of *Proscopia* as 6-, and those of the females as 7-jointed. M. Brullé describes the antennæ of both sexes as 8-jointed. Hist. Nat. d. Ins. Orth. et Hem. p. 212.

a conical plate hollowed out above, and more elongated and entire in the male, whilst it is longitudinally divided in the female; the 9th ventral segment in both sexes being represented by the two small horny triangular plates, behind or beneath the small conical appendage common to Orthopterous insects. It is in the variation of form of these several pieces that the sexes are distinguished.* The general colour of the insect is fulvous-yellow, considerably spotted and marked with black and dark brown, especially on the thighs and back of the thoracic segments.

No species of this genus has hitherto been described as inhabiting any other part of South America than Brazil. The present species, therefore, presents us with an instance of a wider geographical range, being a native of the western portion of South America, whence it was brought, I believe, by Mr. Cuming: it is from this circumstance that I have given to it the specific name employed above.

Proscopia is one of those singular forms which exhibit a great resemblance to the species of a family different from that to which they in reality belong. Thus, we have here the long slender cylindric body of *Bacteria* amongst the *Phasmidæ*, as well as their apterous condition. M. Brullé also mentions two other characters possessed by these insects analogous to those of the *Phasmidæ*, namely, the plate terminating the abdomen of the males, and the compressed and angulated palpi. They appear to represent the old world genus *Truxalis*, in South America, and are evidently brought into relation with the more typical *Locusts* by that genus, and especially by the genus *Mastax*†, (illustrated in the first volume of this work, pl. 26), and by the *Astroma chloropterum* of Charpentier‡, a most interesting insect, also from Chili, (allied to *Proscopia*, and also to *Tetrix* Latr.,) which is described as destitute of all traces of the wing-covers, but having two small greenish wings arising from the first segment of the body (after the prothorax).

* I presume that M. Brullé's first ventral arc in the males is the hind part of the metasternum, separated from the anterior part by an impressed line, which, however, exists less distinctly in the females; and that his 9th ventral segment in the male is the undivided conical eighth ventral arc.

† Germar's Zeitsch. f. d. Ent. 3, 305.

‡ I take this opportunity of describing a new species of *Mastax*, recently forwarded to me from Assam, by Mr. Robinson, by way of supplement to the Memoir on this genus in the first volume of this work.

MASTAX AFFINIS. W. Fusca, facie et lateribus fulvescentibus, capite erecto vertice ad apicem truncato subfido, prothorace carina elevata acuta, abdomine ♂ ad apicem valde inflato, tegminibus fuscis guttis duabu hyalinis, alis fulvis margine tenui fusco. M. guttatæ valde affinis sed multo major. Long. corp. lin. 10. Expans. tegmin. lin. 22.

Habitat. Assam, Ind. Or. In Mus. nostr. amicissime communic. D. Robinson.

The species of the genus *Proscopia* are arranged by Dr. Burmeister* in the following manner:—

I. Those with the eyes placed near the middle of the sides of the head, the front part of which is obtuse, with the sides parallel, or diverging and quadrangular.

A. Those with the front part of the head dilated at the end. 1. *Pr. spinosa*, Kl.; and 2. *Pr. granulata*, Kl.

B. Those with the front of the head of equal breadth throughout.

a. The extremity being as broad as the space between the eyes.

α. Prothorax granulose. 3. *Pr. radula*, Kl. 4. *Pr. hospida*, Kl.

β Prothorax with impressed punctures. 5. *Pr. punctata*, Kl. 6. *Pr. brevicornis*, Kl.

b. Extremity of the head evidently narrower than the space between the eyes.

7. *Pr. scabra*, Kl., and *Pr. gigantea*, Kl.

II. Those with the eyes placed near the tip of the head, which is acuminate.

A. Extremity of the head as long as, or longer than, half the antennæ. 9. *Pr. striata*, Kl. 10. *Pr. acuminata*, Kl. 11. *Pr. ruficornis*, Kl. 12. *Pr. rostrata*, Kl.

B. Extremity of the head very small, much shorter than the half of the antennæ. 13. *Pr. brevirostris*, Kl. 14. *Pr. Ophiopsis*, Kl. 15. *Pr. oculata*, Kl.

M. Serville† divides the genus in the following manner:—

1. Head elevated into a kind of vertical pyramid, &c. (*Proscopia* proper.)

A. Eyes of moderate size, oblong. *Pr. scabra*, Kl., and *Pr. granulata*, Kl.

B. Eyes large, and nearly rounded. *Pr. rostrata*, Kl.

2. Head not elevated into a vertical pyramid, but horizontally prolonged in front in the same line as the body, &c. (*Cephalocœma*.) *Pr. (Ceph.) Sica*, Serv. n. sp. from the southern part of Campos-Geraes, in Brazil; described from the Collection of the Jardin des Plantes, where I examined and sketched the typical specimen described by M. Serville, and find it to be very closely allied to the insect next to be described.

PROSCOPIA (CEPHALOCŒMA) SUBAPTERA, *Westw.* (Plate 63, fig. 2.)

(*Long. lin. 7.*)

P. fusco-brunnea, capite horizontali sensim ad apicem attenuato, antennis vix dimidio rostri longioribus, thorace et abdomine longitudinaliter striatis, prothorace, antice et postice bispinosis; mesothorace spinis duabus paullo majoribus armato tegminibusque duobus liberis minutis instructo, alis duabus minimis liberis nigro-metallicis nitidis sub tegmina reconditis, abdomine supra depresso. ♀ *Long. corp. unc. 3½.*

Habitat. in Brasilia. Mus. nostr.

Obs.—Individuum alterum ♀ possideo 2½ lin. longitudine, statura paullo angustiori rostro longiori (pro magnitudine insecti) coloreque cinereo: spinis thoracis ut et tegminibus et alis cum precedenti vero congruens, vix species distincta.

The insect represented in figure 4 in this plate is one of the most interesting Orthopterous insects hitherto discovered; and it is greatly to be regretted that the very mutilated state of the unique female specimen in the British Museum Collection prevents me from being able to give its whole character. Indeed, it is not surprising that from this circumstance it should have been arranged amongst the Phasmidæ in that collection, since its general appearance certainly bears a much closer resemblance to some of the wingless Phasmidæ than to one of the saltatorial Orthoptera. A slight examination, however, convinced me that, from the structure of the tarsi, and the relative size of the thoracic segments, the insect

* Handb. d. Ent. 2, p. 603.

† Hist. Nat. Ins. Orth. p. 574.

belongs to the family of grasshoppers with long-antennæ (*Gryllidæ*, Leach), although differing from all the known species of that family in several particulars, more especially in the entire want of the curious operculum near the base of the anterior tibiæ, and the large compressed form of the basal joint of the antennæ, which is all that remains of those organs in the specimen before us. From its analogical relations, it may be named—

PHASMODES RANATRIFORMIS, *West.* (PLATE 63, fig. 4.)

Char. Gen. ♀. Corpus valde elongatum depressum parallelum abdomine sensim in medio paullo latiori. Caput horizontale, clypeo labroque magnis discretis. Palpi elongati. Labium e lobis duobus membranaceis spinisque duabus intermediis formatum. Antennæ articulo basali longo compresso. Prothorax elongatus subdepressus subtus inermis: meso- et meta-thorax breves subtus etiam inermes linea longitudina mediana impressa (fig. 4 *a*). Abdomen thorace duplo longius ad apicem sensim attenuatum e segmentis novem distinctis formatum. Oviductus fere abdominis longitudine recta attenuata, e valvulis duobus corneis constans, singulo valvulo e duabus partibus formato (fig. 4 *b*, apex segmenti noni subtus visus: fig. 4 *c*, apex segmenti noni abdominis lateralter visus cum squama conica dorsali styloque laterali et basi oviductus: fig. 4 *d*, apex valvuli e duabus partibus constans, supera ad apicem emarginata, infera acuta et subtus tuberculo instructa). Pedes 4 antici longitudine æquales, graciles, tibiæ anticæ operculo nullo instructæ. Tarsi 4-articulati pilosi articulo penultimo cordato. Tegmina nulla. Alæ nullæ. Mas latet.

Char. Spec. P. viridis, lævis lateribus corporis linea brunnea notatis, tibiis anticis versus basin macula parva fusca.

Long. corp. unc. 2½. Oviductus, unc. 1¼.

Habitat. King George's Sound, Nov. Holl. In Mus. Brit.

The nearest approach to the last-described insect amongst the species of the family *Gryllidæ*, Leach (*Locustaires* Serville,) is made by

* *PROCHILUS AUSTRALIS* of Brullé,*

described more in detail by M. Serville.† As no figure of this insect has hitherto appeared,‡ and as the male alone has been described, I have represented the female in plate 63, fig. 3, and which agrees in general character with the male, which has the abdomen truncate at the tip. I have possessed this insect many years; and Mr. Hope also possesses three specimens—one from the Haworthian Collection. Messrs. Brullé and Serville do not speak of the red base of the hind wings; and the latter states that the head is longer than the prothorax, and that the stridulant organ of the males is transparent; which do not agree with the specimens before me; although they correspond in every other respect with the description given by M. Serville.

The plant represented in the plate is *Physalis edulis*, a native of Peru and Chili, but cultivated at the Cape of Good Hope, and in the English Settlements in New South Wales, where it is known under the name of the Cape Gooseberry.

* Hist. Nat. des Ins., Orthopt. et Hemipt., p. 135.

† Hist. Nat. Orthopt., p. 384.

‡ Brullé and Serville refer to a figure of this insect, "Plate 11, fig. 1, Mâle," but no such has hitherto been published.

64.

1b 1a

1d 1c



PLATE LXIV.

DESCRIPTIONS OF SOME AFRICAN LONGICORN BEETLES.

PARISTEMIA. *Westw.*

Genus novum e familia Cerambycidae, generibus Lophonocero et Pteracanthæ *Newm.** affine. Caput parvum facie obliqua. Oculi valde emarginati. Labrum transversum ciliatum. Mandibulae parvæ. Maxillæ lobo apicali dense at breviter penicillato. Labium ad apicem emarginatum. Antennæ brevæ (in femina vix ad medium elytrorum extensa), crassæ, articulis 1 et 3 longitudine subæqualibus, reliquis parum brevioribus. Prothorax capite multo latior lateribus utrinque oblique porrectis vel in spinam latam productis, angulis posticis valde emarginatis; disco in medio elevato-carinato. Elytra ad basin vix prothorace latiora, sensim rotundato-dilatata, apicibus simplicibus, disco longitudinaliter costata. Pedes brevæ subæquales. Species Africæ tropicalis incolæ.

SPECIES I.—PARISTEMIA PLATYPTERA. (Plate 64, fig. 1).

P. nigra sericea prothorace rufo utrinque striga nigra e capite ad angulos posticos; elytris pone medium fascia latissima postice angulata et fere ad apicem extensa rufa; abdomine obscure rufo.

SYN.—*Paristemia platyptera*, *Westw.* in *Ann. Nat. Hist.* October 1841. Long. corp. lin. 12½. Lat. elytrorum, lin. 5½.

Habitat in Africa tropicali. In *Mus. nostr.* Communic. D. Raddon. (Fig. 1 *a.* maxillary palpus; fig. 1 *b.* labial palpus; fig. 1 *c.* extremity of pro & meso-sterna; fig. 1 *d.* mesosternum, seen sideways.)

SPECIES II.—PARISTEMIA APICALIS, *Westw.* (Plate 64, fig. 2).

P. nigra sericea, capite linea media fulva, prothorace fulvo linea tenui media alterisque duabus lateralibus scutelloque nigris; elytris ad apicem nigris plaga antice in angulum acutum versus basin extensa, corpore subtus nigro, prosterno et mesosterni parte elevata fulvis.

Long. corp. lin. 9½. Lat. elytrorum, lin. 4½.

Habitat in Africa tropicali. In *Mus. D. Turner.*

Obs.—The antennæ are unfortunately broken off at the 7th joint; they are, however, evidently longer than in the former species, which is therefore to be regarded as a female, and this as a male.

SAPERDA CARISSIMA, *Westw.* (Plate 64, fig. 3).

Annals of Nat. Hist. October 1841.

S. brevis opaca, supra viridi-lactea, pronoto vittis tribus longitudinalibus brunneo-fulvis, elytris fascia lata irregulari (in medio interrupta) ex humeris fere ad suturam ducta maculaque magna communi discoidali brunneo-fulvis; his etiam guttis 10 nigris rotundatis ornatis.

Long. corp. lin. 5.

Habitat in Africa tropicali. In *Mus. D. Raddon, Parry, Hope, &c.*

NEMOTRAGUS. *Klug.*

I am not aware whether any characters have hitherto been published by Dr. Klug, of the genus instituted for the reception of the interesting insect represented in fig. 4. It is to the kindness of that distinguished entomologist that I am indebted for my specimen, which I received from him in 1835, since which period a considerable number of individuals have been obtained by one of the London dealers in objects of natural history. In this uncertainty I shall merely notice that its greatly elongated form, large

* The undescribed genus *Pteroplatus* of Dejean's Catalogue, composed of three Brazilian and Mexican species, is evidently also closely allied to these insects.

rounded eyes, having a very small emargination in front, elongated, slender, and simple antennæ, unarmed prothorax, pointed tips of the elytra and simple nearly equal sized-legs, with curved tibiæ, seem to constitute its chief characters.

NEMOTRAGUS HELVOLUS. *Klug.* (Plate 64, fig. 4).

N. brunneus punctatus, luteo squamosus, linea longitudinali laterali prothoracis humerisque nudis, antennis pedibusque brunneis.

Long. corp. lin. 13, long. antenn. unc. 2½. ?

Habitat in Africa meridionali. In Mus. nostr. &c.

LAMIA OBESA, Westw. (Plate 64, fig. 5.)

L. albida luteo-squamosa, fulvo fuscoque varia, prothorace tuberculis vittaque media utrinque furcata fuscis, lateribus utrinque spina brevi crassa armatis; clytris maculis duabus sub-ovalibus obliquis ante medium pallidis alterisque duabus minoribus mediis fasciisque variis angulatis maculisque duabus subapicalibus fuscis ornatis, facie antennis pedibusque luteis.

Long. corp. unc. 1¾. Lat. clytr. unc.

Habitat in Africa meridionali.

This is one of the fine species of insects contained in the collection recently brought to England by Mr. Burke, from the hilly country, lying between 25° and 26° S. lat., and 27° and 28° E. long., and which, by the kindness of the Earl of Derby has been distributed to the Zoological Society and the British Museum. I am indebted to Mr. Melly for the opportunity of figuring the species, he having sent it to me on its first arrival in this country.

The plant represented in this plate is the *Iris viscarea* of Thunberg, found in the sandy spots of Saldanha Bay, near the Cape of Good Hope.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW WORKS. &c.

(No. XVI.)

CATALOG DER KÄFER-SAMLUNG VON JACOB STURM. Nuremburg, 1843. With 6 coloured copper-plates. 8vo, 386 pages.

WE have here an imitation of the Catalogue of Dejean's Collection of Coleopterous insects, with, however, occasional references to figures and synonymes. There is, however, a vast difference in the amount of species of the two collections, and consequently in the comparative usefulness of the two catalogues. Dejean's last edition contained considerably more than 20,000 species, whereas Sturm gives but 13,266. In many of the more interesting groups, the poverty of the latter list is very striking: thus, there is only 1 species of *Oxycheila*, 1 *Dromica*, 2 *Therates*, 1 *Casnonia*, 4 *Panagæi*, 2 *Rhipiceræ*, 1 *Callirhipis*, 3 *Goliathi* (*micans*, *japonicus*, and *Höpfneri*), 2 *Paussi*. The catalogue is, as may be easily supposed, strongest in European and Brazilian species. An appendix contains descriptions and figures (beautifully drawn, engraved, and coloured) of the following insects:—Three new Brazilian species of *Lia* (a genus allied to *Lebia*); *Axinidium africanum*, St., a new genus, referred to the *Scaritidæ*, but having more of the habit of *Stomis* and *Miscodera*, with long toothless mandibles, long slender maxillæ, with the hook not articulated (judging from the figure, for the description is silent as to this character), maxillary palpi strongly securiform, labial palpi slender and filiform, mentum conically produced in the centre, fore tibiæ not externally dentated (but with the deep notch and spur on the inside); the species is 4 lines long, black, smooth, with red antennæ, palpi, and feet, the elytra smooth, each having three deep punctures. *Julodes Rothii*, St., from Jerusalem; *Lycus appendiculatus*, St., from Senegal, allied to *L. foliaceus*, Sch.; *Hydrophilus substriatus*, St., from the neighbourhood of Cassel; 3 Mexican species of *Phanæus*; *Scarabæus Petiveri*, Erichs. (*Dejeanii* Buq., *Golofa Porteri* Hope); 7 Mexican species of *Pelidnota*; *Amphicoma Papaveris*, from Jerusalem; *Chiasognathus Grantii*, ♂ and ♀ (two brilliant figures); *Ryssonotus nebulosus*, Kirby; *Lucanus turcicus*, from Constantinople; with 6 plates in the club of the antennæ; my *Xyphodontus*

Antilope, from Caffraria, under the name of *Corypticus capensis*, Dej.; *Xopherus variolosus*, from Mexico; *Amyteres paradoxus*, from New Holland, allied to *Curculio mirabilis*, K.; *Tachyopus* (*Tachygonus*, Dej.) *Lecontei*, a curious little weevil from South Carolina; *Purpuricen* *Dalmatinus*, St., from Dalmatia; *Ozodes Mexicanus*; *Dorcadion tomentosum*, from Nauplia; *Saperda Græca*; *Mesophalacrus Spinolæ*, from New Holland, an interesting genus, allied to *Sagra* and *Donacia*, already previously figured in Griffith's *Animal Kingdom*, Insects, pl. 67, fig. 2, under the incorrect name of *Carpophagus Banksii*; and also in the third part of Mr. Hope's *Coleopterist's Manual*, pl. 2, fig. 6; where the name of *Mecynodera picta* is given to it; and *Platyauchenia limbata*, a new genus from Brazil, allied to *Alurnus*.

These descriptions and figures constitute, in fact, the only valuable part of the work; for if the possessor of every second-rate collection of *Coleoptera*, like that of the author, were to undertake such a catalogue as this, giving names only, without descriptions, to hundreds of new species, already, perhaps, named in Dejean's Catalogue, what endless confusion in the nomenclature of the order! How much better would it be to undertake but a single family at a time, describing all the new species in it? Mr. Hope has set the example, in publishing such a catalogue of portions of the *Hemiptera*, and proposes, on his return from Italy, to follow the same plan in another very extensive tribe.

CONSIDERAZIONE SOPRA I COSTUMI DEGL' IMENOTTERI DEL G. SIREX, FAB., E sopra il miglior posto dei Sireciti nel metodo razionale. Memoria del Marchese MASSIMILIANO SPINOLA. Genova, 1843.

In this memoir, the Marquis of Spinola, after stating the general opinion amongst naturalists, that the *Siricidæ* in their larva-state are wood-feeders, and more especially mentioning the researches of Rosel von Rosenhoff, Jurine, Hartig, and Sells,* which supports that opinion, takes up the observation of Saint Fargeau, published in the *Encyclopédie Méthodique*†, in which the parasitism of that group was first asserted, and mentions, in support of it, that he received in 1841, from the Marquis Carlo Durazzo, a specimen of *Sirex Gigas*, inscribed, "Parasita in larva di Far-

* Proceedings of Entomological Society of London, May, 1838.

† Vol. x., p. 770, M. Saint Fargeau has again insisted on his view of the habits of the genus, in his *Hist. Nat. Hyménopt.*, i. p. 5, note 3.

falle"—parasitic in the larva of a butterfly—that Signor Franchi had informed him that he had reared another from the larva of *Papilio Machaon*; adding, in a supplementary note, that Signor G. B. Villa at Milan possessed a specimen of a *Sirex*, which he assured him, “era pure sortita dalla larva di un *Papilio*, sotto ai di lui occhi e nel di lui gabinetto.” Upon these statements, the author proposes a fresh modification of the classification of the Hymenoptera, in order to make it accord with their supposed parasitic habits.

Having entered into the question of the habits of this family at considerable length, in the 2nd volume of my *Introduction to the Modern Classification of Insects*,* where I have represented the various parts of the mouth of the Larva, I shall only observe that the numberless instances on record of species of this genus making their appearance out of the wooden flooring of newly-built houses,† quite overturns the statements of their being parasitic in the bodies of the caterpillars of butterflies; whilst the structure of the mandibles of the larvæ of *Sirex*, eminently fits them for gnawing through hard substances, and that the mandibles of Parasitic Hymenopterous larvæ are entirely of a different construction. Comp. figures, 70, 3, 4, (vol. ii. p. 94), 72, 20, (p. 115), and 76 15 (p. 140 of the 2nd volume of my work abovementioned).

OSSERVAZIONI SOPRA I CARATTERI NATURALI, DI TRE FAMIGLIE D'INSETTI IMENOTTERI; cioè, le VESPARIE, le MASARIDE, e le CRISIDIDE. Memoria del Marchese MASSIMILIANO SPINOLA. Genova, 1843.

COMMENCING with the axiom, that “i migliori caratteri entomologici sono somministrati dalle forme esterne, e che le migliori forme sono quelle che mettono in evidenza la miglior legge organica,” the author has in this memoir entered into a profound revision of the physiological peculiarities of the chief hymenopterous groups, of which it is impossible to give an abstract; but of which the summary is contained “nel quadro sinottico che segue” :—

* Vol. ii. p. 117 and *seq.*

† The author gets over this difficulty by supposing that they are ordinarily parasitic upon wood-boring larvæ of Coleoptera, and only occasionally so in Lepidopterous larvæ; but, in those parts of England where the *Siricidæ* occur, we have not any xylophagous larvæ fitted for the *Siricidæ* to exercise their parasitism upon.

Legge organica.	Carattere esterno.	Famiglie.
1. Auenti la facoltà di muovere a piacimento il loro abdome, senza avere da muovere previamente le loro ale.	Ale piegate longitudinalmente nel riposo, colla costa della piegatura parallela all' asse del corpo.	1. Vesparie.
2. Auenti la facoltà precedente o di più, quella di contrarsi, nel riposo, a segno che l'estremità posteriore del loro corpo arrivi al contatto dell'estremità anteriore.	1. Il carattere della famiglia precedente. 2. Il metatorace dilatato lateralmente ed iscavato inferiormente a segno che ogni cavità possa dar ricetto ai due piedi posteriori del medesimo lato.	2. Masaride.
3. Auenti la seconda facoltà ma sprovvisti della prima.	Il secondo soltanto dei due caratteri precedenti.	3. Crisidide.
4. Privi dell' una o dell' altra facoltà.		Tutte le famiglie che non sono contemplate nel presente discorso.

MONOGRAPHIE DER FAMILIEN DER PFLANZENLÄUSE (PHYTOPHTHIREN). VON J. H. KALTENBACH. Aachen, 1843. 8vo. 222 pp., and one plate.

It is rather remarkable that, whilst the extraordinary physiological peculiarities exhibited by the Aphides, in respect to their modes of reproduction, have attracted the notice of every Naturalist, so few attempts have been made to describe the very numerous species of which the family consists. It is true, numerous species are indicated by Linnæus, Fabricius, and others, but, with scarcely any other description than that of the name of the plant on which they are found. In our own country, many species were well figured by Harris, long ago, in his "Exposition of English Insects," and a most extensive series of species, together with the plants which they attack, was formed by Mr. Haworth, who was induced to place them in Mr. Donovan's hands, with the view to their publication with figures; the latter author giving up to Mr. Haworth, in return, a unique specimen of the splendid Indian grasshopper, since published by Donovan, under the name of *Gryllus Donovanii*, in the *Naturalist's Repository*. Unfortunately, the latter never proceeded with the contemplated work: the collection, formed with so much care, was returned, half-eaten by mites, to Mr. Haworth, and at the sale of his collection, it fetched the price of *one shilling*!

On the Continent, the works of Hausmann,* Kyber,† Schrank,‡

* Illiger's Mag., vol. i.

† Germar's Mag., vol. i.

‡ Fauna Boica.

Burmeister,* Zetterstedt,† Van Heyden,‡ and especially of Dr. Th. Hartig,§ have, by degrees, contributed considerable materials towards the knowledge and classification of these insects, and we have now a volume upon the family, from the pen of M. Kaltenbach, of Aix-la-Chapelle.

An introduction of 40 pages gives a general account of the structure, physiology, and habits of these insects; which, according to their mode of generation, form three principal groups.

1. Vivi-oviparous (G. Aphis and Lachnus).
2. Oviparous (G. Chermes, Phylloxera Vacuna ?)
3. Viviparous (G. Tetraneura, Pemphigus, Schizoneura, and probably the underground genera Forda, Rhizobius, Paracletus, and Trama).

These genera are characterised in the following tabular distribution :—

1. Abtheilung. Winged species, Blattlause.

Fore-wings with a biramos ecubitus :

Antennæ 7-jointed, long	1 G. Aphis.
“ 6-jointed, short	2 G. Lachnus.

Fore-wings with a 1-ramose cubitus :

Antennæ 6-jointed, &c.	3 G. Schizoneura.
“ 5-jointed, &c.	4 G. Vacuna.

Fore-wings with a simple cubitus.

Fore-wings with 4 oblique veins, antennæ 6-jointed.

Hind-wings with 2 oblique veins	5 Pemphigus.
“ with 1 oblique vein	6 Tetraneura.

Fore-wings with 3 oblique veins, &c. :

Antennæ 5-jointed, &c.	7 G. Chermes.
“ 3-jointed, &c.	8 Phylloxera.

2. Abtheilung. Wingless subterranean species, Ilyponomcutes.

Antennæ 6-jointed.

Last joint of antennæ thick, longer than the preceding	9 G. Rhizobius.
“ “ slender, shorter “	10 G. Forda.

Antennæ 7-jointed, last joint very small :

Hind tarsi long and jointless	11 G. Trama.
“ “ two-jointed	12 G. Paracletus.

Of the genus Aphis L. 119 Species are described :

“ Lachnus, Ill. 13 species	(Aphis Quercus, Linn., A. Roboris, Linn. &c. G. Cinara, Curtis).
“ Schizoneura, Hart. 6 species	(Aphis lanigera, Ulmi, &c.)
“ Vacuna, Van Heyd. 2 species	(A. dryophila, Schk. and a n. sp.)
“ Pemphigus , Hart., 7 species	(A. bursarius, L. &c.)
“ Tetraneura, Hart., 1 species	(A. Ulmi Degeer).
“ Chermes¶, Linn., 4 species	(Ch. Abietis, Linn. &c.)

* Handb. d. Ent., vol. ii.

† Insecta Lapponica.

‡ In Museum Seckenb.

§ In Germar's Zeitschrift, vol. iii.

|| The name of Brysocrypta Haliday (Westw. Gen. Synopsis, Brit. Ins., p. 118), must be retained for this genus.

¶ I consider that the name, Adelges Vallot, ought to be given to this genus.

Of the genus <i>Phylloxera</i> , B. de F., 1 species .	(<i>Vac. coccinea</i> , Van Heyd. <i>P. Quercus</i> , B. de F.)
" <i>Rhizobius</i> , Burm., 3 species .	(<i>Rh. Pilosellæ</i> Burm. &c.)
" <i>Forda</i> , Van Heyd., 1 species .	(<i>F. formicaria</i>).
" <i>Trama</i> , Van H., 1 species .	(<i>T. troglodytes</i> , Van H.)
" <i>Paracletus</i> , Van H., 1 species .	(<i>P. cimiciformis</i> , Van H.)

The genus *Atheroides* Haliday* appears to be unknown to the continental authors, whilst the generic name *Eriosoma*, Leach, (*Myzoxyle* Blot.) must take place of that of *Pemphigus*, and be restricted to such species as differ from *A. bursarius*. In like manner, my generic name *Thelaxes* is synonymous with *Vacuna*, as restricted by Kaltenbach, Th. *Quercicola*, W., being, most probably, *V. dryophila*, Van H.; *Vacuna coccinæa*, V. H. being removed to the genus *Phylloxera* Fonsc.

A double index, first of the insects, and second of the various plants attacked by them, terminates the work.

SPECIES ET ICONOGRAPHIE GÉNÉRIQUE DES ANIMAUX ARTICULÉS; ou Représentation des Genres avec leur description, et celles de toutes les Espèces de cette grande Division du Règne Animal: ouvrage formant une série de Monographies complètes. Par M. F. E. GUÉRIN-MÉNEVILLE. 8vo. Paris, 1843. Livraisons 1 et 2.

THE work of which I have given the title at full length above, promises to be of the greatest service to entomologists. The extensive collections in Paris opened to the author's researches, his own excellent cabinet, library, and folios of drawings, are all laid under contribution to perfect this work, which has been so long announced, and so much longer the object of the author's attention. Instead of commencing the *Coleoptera* with the *Cicindelidæ* and *Carabidæ*, the author has undertaken the illustration of the less known group of *Cebrionidæ* and allied genera; and we have, in the two livraisons now published, excellent illustrations and descriptions of the following genera and species:—*Rhipicera*, 11 sp.; *Sandalus*, 5 sp.; *Scirtes*, 16 sp.; *Eucinetus*, 2 sp.; *Ptyocerus*, 4 sp.; *Selasia*, 3 sp.; *Chamaeripis*, 1 sp.; and *Basodonta*, 1 sp. Each genus is represented with its details in a separate plate, drawn with all the skill of its excellent author.

* Westw. Gen. Syn., p. 118.

65

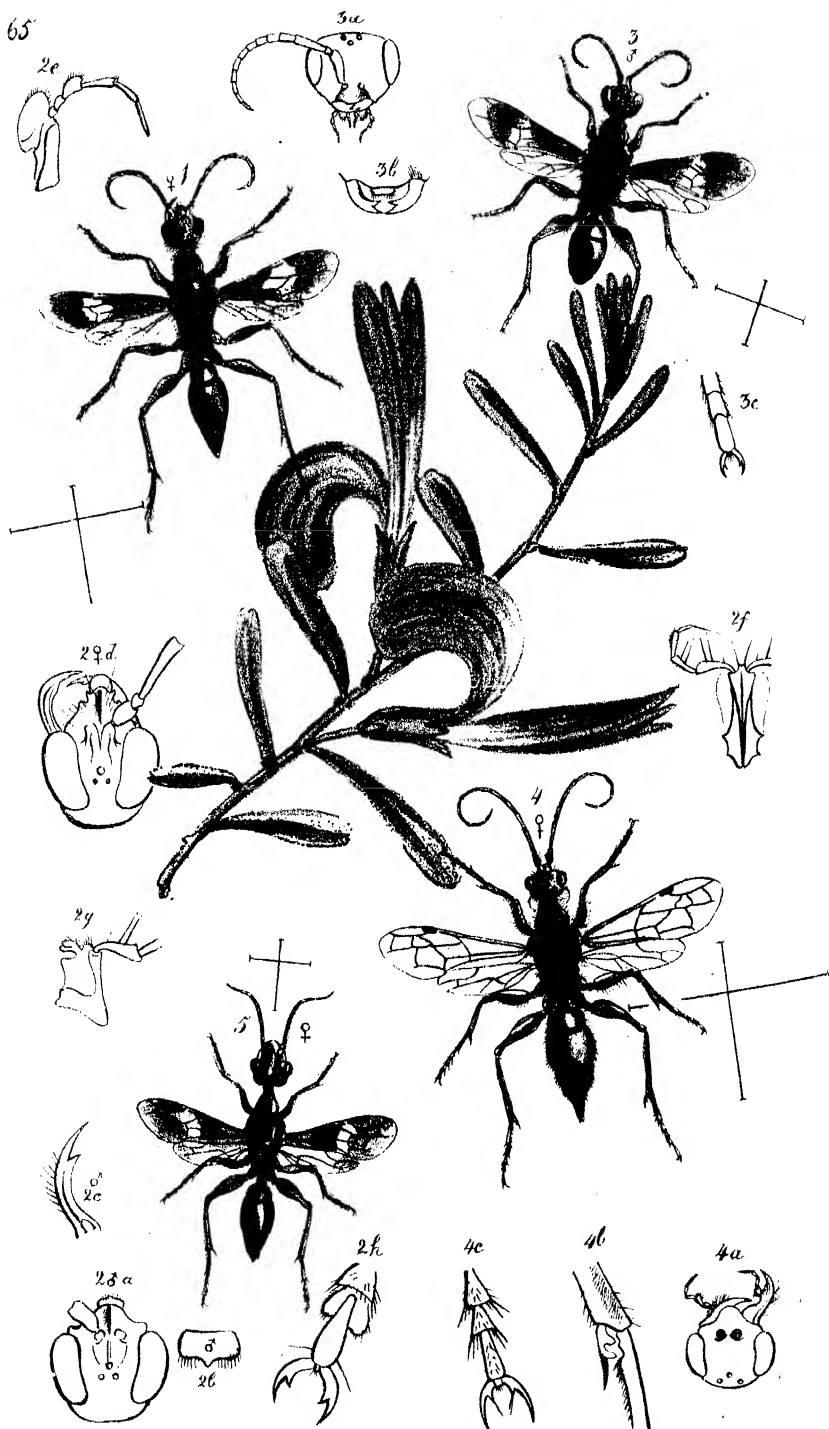


PLATE LXV.

ILLUSTRATIONS OF SOME GENERA OF FOSSORIAL HYMENOPTEROUS INSECTS, BELONGING TO THE FAMILY SPHEGIDÆ.

THE curious genus *Chlorion* of Latreille, (*Ampulex Jurine*) having been raised by Shuckard * and Dahlbom † to the rank of a family, distinct from the Sphegidae, it becomes interesting to examine its precise structure, as well as that of some new forms closely allied to it; in order to discover the propriety of such a step. In the third volume of the Transactions of the Entomological Society, I established two new genera, bearing such a relationship; but, it happened, that at that period I was acquainted only with one sex of each of them. Having since become acquainted with the opposite sexes of each, and having likewise observed in the Collection of the British Museum another undescribed form, I have in the accompanying plate completed my illustrations of these groups, by figuring the sexes hitherto wanting, as well as numerous details of the genus *Chlorion* itself, together with a new and beautiful species of that genus from the Collection of W. Burchell, Esq.

GENUS.—CHLORION, *Latreille*.‡ (*AMPULEX Jurine*.)

CHLORION PURPUREUM, *Westw.*

(Plate 65, fig. 1.)

C. læte purpureum, valde punctatum, mesonoto obscuriore, metanoto transverse striato, carinisque novem (2da et 3tia utrinque a medio discretis) antennis clypeo tibiis tarsisque nigris; alis anticis fuscis fascia lata pene medium alisque posticis sub-hyalinis; abdomine postice minus compresso quam in *A. compressiventre* *Guer.*; collare postice tuberculo elevato instructo; mandibulis nigris apice piccis; tarsorum articulo penultimo minori quam in congeneribus, articulo basali antennarum subtus rufescenti. ♀

Long. corp. ♀ lin. 7. Expans. alar. lin. 8½.

Habitat in Africa Australiori, D. Burchell.

In addition to this species and the original type of the genus *Chlorion compressum*, the following species have been recently described and figured.

SPECIES 3.—CHLORION CYANIPES, *Westw.* (In Trans. Ent. Soc. 3, p. 230.)
From the Cape of Good Hope.

* Cabinet Cyclop. Nat. Hist. Ins. p. 180. See my observations hereon in Trans. Ent. Soc. 3, p. 230, note *.

† Hymenoptera Europæa. Lund. 1843, p. 29: in which excellent work the genus *Dolichurus* is removed to the family Pompilidae, whilst in his previous 'Dispositio methodica', Part 1, Lund. 1842, he has placed *Ampulex* and *Dolichurus* together as the first section A. of Pompilidae.

‡ See Trans. Ent. Soc. vol. 3, p. 227, for the reasons which induce me to regard the *Spilæx compressa* as the true type of the genus *Chlorion*.

SPECIES 4.—CHLORION (AMPULEX) ANGUSTICOLLE, *Spinola*. (In Ann. Soc. Ent. de Franco 1841, p. 108*.)

From Cayenne.

SPECIES 5.—CHLORION (AMPULEX) ÆNEUM, *Spinola*. (In Op. cit. p. 110.)
From the coast of Malabar.

SPECIES 6.—CHLORION (AMPULEX) COMPRESSIVENTRE, *Guérin*. (Icon. R. An. Ins., pl. 70, fig. 4.)

SPECIES 7.—CHLORION GUERINI, *Dahlbom*. (Hym. Europ. p. 29.)

The following is the description of the figures illustrating the structure of the insects of this genus, taken from *C. compressum*. Fig. 2 *a* is the head of the male, with the mandibles removed, showing its clypeus to be less porrected than in the female (fig. 2 *d*.) Fig. 2 *b* represents the labrum detached, and 2 *c* the mandible of the male, with a strong tooth on the inside below the apex. Fig. 2 *d* is the head of the female, with the mandibles and base of the antenna; the former with the inner edge slightly produced below the apex. Fig. 2 *e* is the maxilla; 2 *f* the mentum and labial palpus, seen from beneath; and 2 *g* the same seen laterally, this figure showing the inflected lobes of the labium. 2 *h* represents the apical portion of the tarsi, showing the lobed penultimate joint and bifid unguis.

GENUS TRIROGMA, *Westw.*

(Trans. Ent. Soc., vol. iii. p. 223.)

Hoc genus olim ex individuo unico maris conditum, nunc characteribus utriusque sexus confirmatum.

Corpus subelongatum punctatum, abdomine ♀ tamen lævissimo, cæruleo-nitidum, et pilis longis griseis undique villosum. Caput antice clypeo parum producto subdeclivi (fig. 4 *a*) tuberculoque inter partem inferiorem oculorum armato, in quo insident antennæ. Oculi magni laterales margine antice parum emarginato. Ocelli 3, in triangulum dispositi. Antennæ in utroque sexu longæ graciles, ♂ filiformes, ♀ ad apicem attenuatæ, his subconvolutis. Labrum minutissimum exsertum obovatum depressum membranaceum. Mandibulæ ♂ validæ curvatæ apice acutæ intus dente latissimo (angulo basali valde prominenti et acuto): ♀ multo angustiores, pone medium marginis interni denticulis tribus parvis instructæ. Palpi maxillares mediocres articulo 1mo minuto 2bus proximis majoribus, ultimis tribus elongatis et gracilioribus. Palpi labiales 4-articulati articulo basali longiori, 2ndo breviori. Thorax oblongo-ovatus; collare mesothorace multo angustius antice angustum lateribus rotundatis, supra impressione longitudinali in lobos duos supra angulatos divisum; metathorax subconicus lateribus subangulatis discoque carinis obliquis notato. Alæ anticæ cellula unica marginali, ad apicem haud appendiculata; tribusque completis, cum quarta inchoata submarginalibus, harum cellula 1ma elongata accipit versus apicem venam primam recurrentem, cellula 2da minori subtriangulari accipit pone medium venam 2m. recurrentem. Pedes graciles femoribus ad basin clavatis, tarsis longis gracilibus articulo 4to simplici, unguibus bifidis terminato. Tibiæ anticæ ♀ fere inermes, setis minutis instructæ, calcari majori intus lata bipartita instructæ (fig. 4 *b*). Tarsi antici ♀ spinulis ad apicem articulorum tantum (fig. 4 *c*) sotisque rigidis minutis subtus instructis. Tibiæ 4 posticæ etiam fere inermes, bicalcaratæ, tarsisque eodem modo armatis. Abdomen ♂ breviter petiolatum, 3-annu-

* This species is a native of Cayenne, being the only instance I am hitherto acquainted with, of the occurrence of any species of this or the allied genera, in South America; if, indeed we except Perty's genus, *Trigonopsis*, which will, I think, be found to be closely allied to them.

latum, punctatum, segmentis postice parum coarctatis intermedio majori; ♀ 6 annulatum, 3bus ultimis minutis.

Obs.—Descriptionem fusiozem maris in opere citato invenies.

SPECIES UNICA.—*TRIROGMA CÆRULEA*. (Plate 65, fig. 4.) ♀.

T. cærulea punctata griseo-villosa, antennis tibiis tarsisque nigris, alis hyalinis stigmatibusque nigris, metathorace utrinque supra lineam elevatam areaque mediam basalem notatam.

Long. corp. lin. $6\frac{1}{2}$ —9. Expans. alar. lin. $9\frac{1}{2}$ —13.

Habitat in partibus medianis et septentrionalibus Indiae Orientalis. In Mus. Harsey et Saunders.

SYN.—*Trirogma cærulea*, Westw., Trans. Ent. Soc. iii., p. 225. Plate 12, fig. 3 ♂.

Several specimens of this interesting insect, which is intermediate between *Chlorion* (*Ampulex*) and *Dolichurus*, captured by my friend, Colonel Harsey, in Central India, have enabled me to complete the characters of the genus which I established for its reception in the Transactions of the Entomological Society.

APHELOTOMA, Westw.

(Trans. Ent. Soc. Lond., Vol. iii. p. 225.)

Hoc genus olim ex individuis femininis tantum descriptum nunc characteribus utriusque sexus confirmatum.

Caput latum facie depressa antice parum producta, haud tuberculata (fig. 3 *a*). Mandibulae ♂ curvatae, et interne ante apicem dente acuto armatae (fig. 3 *b*); ♀ crassae versus basin subito constrictae apice acutae, dente interno parvo acuto armatae. Palpi maxillares 6-articulati articulis duobus basalibus brevibus fere aequalibus, 3tio paullo longiori et crassiori, reliquis 3bus fere aequalibus sensim gracilioribus. Palpi labiales 4-articulati fere filiformes articulo basali longiori, reliquis subaequalibus. Antennae breviores subfiliformes, in tuberculo haud insidentes; articulo 1mo longo; 3tio longissimo. Collaro subconicum dorso in medio plano. Metathorax supra planiusculus carinis duabus elevatis lateralibus, dorsoque lineis circiter 10 irregularibus longitudinalibus, elevatis striis transversis connexis.

Abdomen ♂ thorace multo minus, quasi 6-annulatum, segmentis 3bus ultimis vero minutissimis; ♀ longius apice conico, segmentis 3bus basalibus magnis, 4to minori reliquis minutis; segmentis duobus basalibus in utroque sexu nitidis laevissimis, reliquis quasi sericeis et obscurioribus. Alae breves, antica cellula unica marginali, apice haud appendiculata, cellulis quatuor submarginalibus; 1ma majori, (in medio ad apicem appendiculata) venam primam recurrentem excipiente; 2da parva antice attenuata; 3tia subquadrata venam recurrentem 2dam versus basin excipiente; 4ta ad apicem alae currente. Pedes ♀ elongati omnino inermes et ciliis destituti. Tarsorum articulus penultimus simplex (fig. 3 *c*) unguis in medio subtus dente parvo instructi.

SPECIES UNICA.—*APHELOTOMA TASMANICA*. (Plate 65, fig. 3 ♂.)

A. nigra pedibus rufis alis fuscis, anticis fascia media alba. Long. corp. lin. 4—4 $\frac{1}{2}$. Expans. alar. lin. 6.

Habitat in Terra Van Diemenii.

♀ In Mus. nostr. Commun. Dom. Ewing, and ♂ In Mus. W. W. Saunders, F.L.S.

SYN.—*Aphelotoma Tasmanica*, Westw. Op. Cit. p. 226, pl. xii. fig. 4 ♀.

♂. Mandibulae rufae extremo apice nigro. Antennae rufae articulis 6 ultimis nigris; pedes rufi coxis trochanteribus, et basi femorum praesertim in anticis nigris.

♀ Mandibulae nigrae apice piceae, antennae nigrae articuli 4ti apice, 5to toto, et 6to fere toto rufescentibus. Pedes cum coxis omnino rufi.

Obs.—Descriptionem fusiozem hujus sexus invenies in opere citato.

RHINOPSIS, *Westwood*.

Genus novum, e Georgia Americæ septentrionalis; Chlorioni affine at venis alarum anticarum distinctum.

Caput depressum, clypeo attenuato. Mandibulæ ♀ integræ falcatæ; antennæ sat longæ graciles, articulo 3tio longo graciliori. Collare triangulare in lobos duos linea impressa longitudinali divisum. Metathorax costatus et transversaliter striatus. Petiolus abdominis longior quam in Chlorionibus veris. Abdomen segmento 2ndo maximo. Pedes longi graciles simplices tarsorum articulo 4to brevissimo at subtus bilobo; ungues subtus in medio dente instructi. Alæ breves anticæ cellula unica marginali, ad apicem parum appendiculata; duabus completis 3tiæque inchoata submarginalibus harum prima longa accipit venam 1am recurrentem, 2da subquadrata accipit venam 2dam recurrentem, 3tia apicem alæ haud attingit.

SPECIES UNICA. RHINOPSIS ABBOTTI, *Westw.* (Plate 65, fig. 5 ♀.)

Rh. nigra pedibus piccis tarsis pallidioribus; mandibulis pallide piccis; alis hyalinis fascia lata fusca ante alteraque pone medium fuscis.

Long. corp. lin. 4. Expans alar. lin. 4.

Habitat in Georgia Americæ Sept. D. Abbott. In Mus. Britan. ♀.

Obs.—The unique specimen of this insect in the British Museum collection, is without any indication of locality. My authority for giving it as a native of Georgia, in America, is Abbott's collection of drawings in the British Museum; in the twelfth volume of which it is carefully figured, under the number xxx 95, and where it is stated to have been taken on the 20th April, in oak woods, but that it is very rare.

The plant represented in the plate is the Australian *Templetonia glauca*.



PLATE LXVI.

ILLUSTRATIONS OF TWO HITHERTO UNFIGURED SUPPOSED SPECIES
OF THE GENUS PAPILIO.

PAPILIO ASTORION.

(Plate 66, fig. sup.)

P. alis elongatis valde angustis, posticis subsinuatis ccaudatis; omnibus cyaneo-nigris immaculatis; anticarum dimidio apicali subtus obscurè griseo-nigricanti venis strigisque intermediis nigris, capite antice cum lateribus collaris, thoracis marginibusque posticis segmentorum ventralium abdominalium sanguineis ♂.

Expans. alar. unc. $4\frac{3}{4}$, 5.

Habitat. Sylhet Ind. Orient. In Mus. Soc. Ent. Lond. et Doubleday.

SYN.—*P. Astorion*, Westw. Ann. Nat. Hist. 1842. p. 37.

PAPILIO CHARA.

(Plate 66, fig. inf.)

P. alis anticis latis apice rotundatis, anticis basi nigris apice sensim infuscatiss anguloque anali albido, venis strigisque intermediis nigris, alis posticis cyaneo-nigris margine sinuatis ccaudatis, capite antice et lateribus collaris thoracis et abdominalis sanguineis nigro maculatis ♀. An femina precedentis.

Expans. alar. unc. $5\frac{1}{2}$.

Habitat Sylhet. Ind. Or. In Mus. Brit. et Doubleday.

SYN.—*Papilio Chara*, Westw. in Ann. Nat. Hist. 1842, p. 37.

Papilio Varuna, White in Entomol. p. 280.

IN assigning to this supposed species the name of *P. Chara*, I desired to show its possible relation as the opposite sex to *P. Astorion*.* Their specific identity can at present, however, be only conjectured. Should they ultimately prove to be so, it will be in accordance with the ordinary practice, to retain the name of the male as that of the species.

The plant represented in the plate, is the Nepalese *Hedychium coronarium* *Koen*.

“ Next to that Book which shows to guilty man
How he through mercy infinite, may gain
More than he lost in Eden, I do rank,
And justly so, sweet NATURE’S varied lore,
For well it records many a glorious truth
Which in that better record stands revealed.
The furious hurricane that rends the heavens
And makes the scared and desolated earth

* These are the names of the hounds of Boötes.

Reel like a drunkard ; the resistless flood,
 The barren waste ; nay, e'en the very thorn
 Which wounds our finger when we pluck the flower,
 And noxious weed that mocks the hope of toil,
 Do all attest one truth, man's foul revolt.
 The changing seasons, winter's death-like reign
 So soon succeeded by the bloom of Spring,
 What are they but the types of man's decease,
 And resurrection ? The blithe birds which perch
 Beneath our cottage eaves, the smiling flowers
 Which decorate the hedge-row and the mead,
 Do they not mind us to repose our trust
 On HIM who feeds and clothes them day by day ?"
 What says the lip of Wisdom ? " Mark the fowls,
 Which neither sow, nor reap, nor store in barns,
 And yet your heavenly Father feedeth them.
 Consider too, the lilies how they grow,
 They neither toil, nor spin, and yet I say,
 That Solomon in all his glorious pomp
 Was not arrayed like these. Wherefore, if God
 Thus clothes the grass, so soon to pass away,
 And feed the fowls of Heaven : Shall HE not then
 Much rather for your daily wants provide ?
 O ye of little faith !"

RECOLLECTIONS OF THE LAKES.

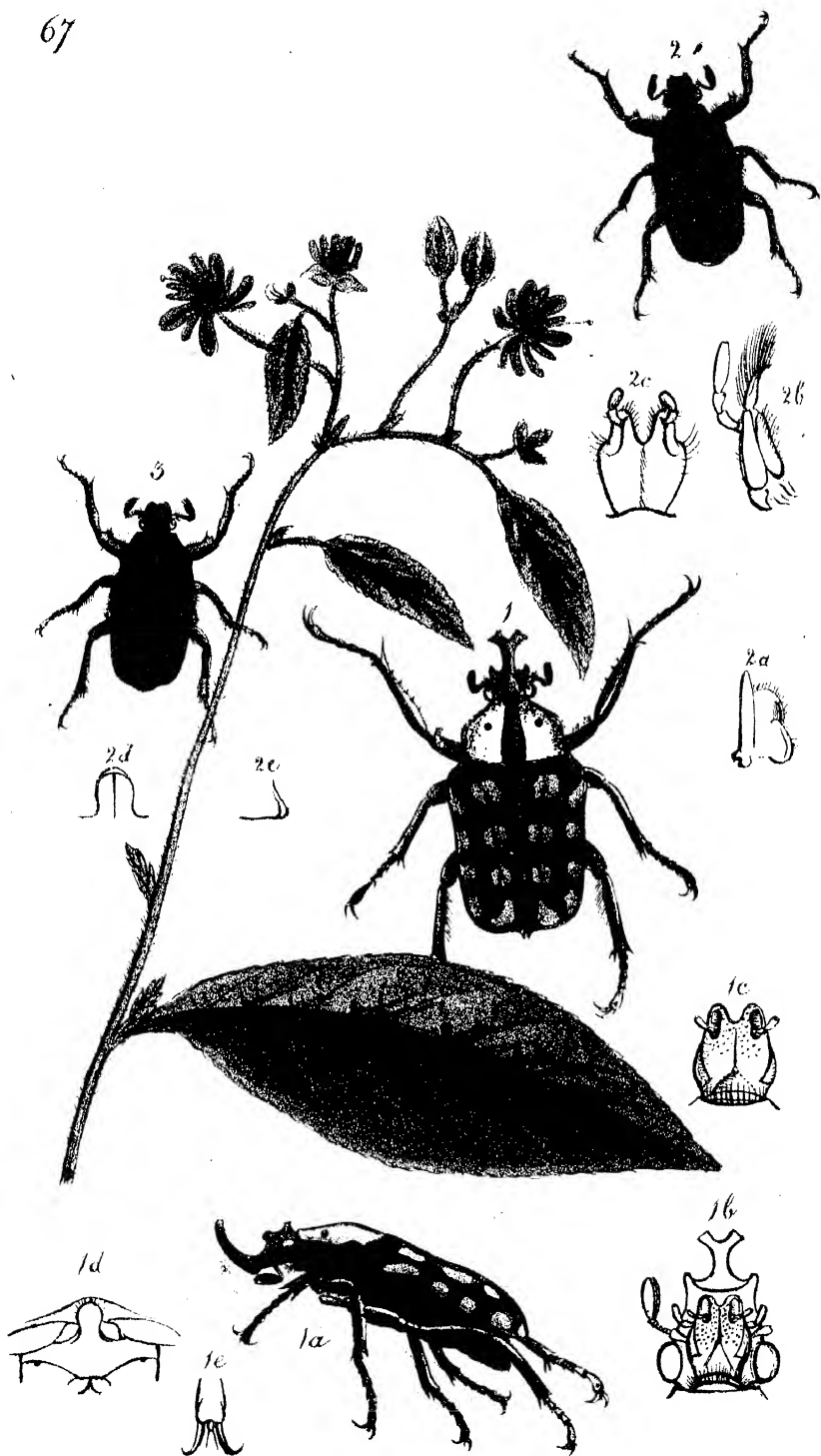


PLATE LXVII.

ILLUSTRATIONS OF TWO NEW GOLIATH BEETLES.

FAMILY.—CETONIIDÆ.

SUB-FAMILY.—GOLIATHIDES.

GENUS.—CERATORHINA.

SUB-GENUS NOVUM.—AMAURODES, *Westw.*

CERATORHINA (AMAURODES) PASSERINII (MELLY'S MSS.)

(Plate 67, fig. 1.)

THE insect here represented belongs to that section of the genus *Ceratorhina*, which has the anterior tibiæ of the males denticulated only on the inner edge (see vol. i., p. 171). As it differs from the *Dicronorhinæ* in the form of the horn of the head, and from the *Eudicellæ* in its obscure colours, I have considered it as a distinct sub-genus, which evidently leads to *Cheiolasia*. I regret that I am able to give no account of the structure of the female, nor of the formation of the maxillæ, my figures being copied from a drawing by Signor Passerini, kindly forwarded to me by A. Melly, Esq., for publication in this work.

Char. Subgener. Tibiæ ♂ anticæ intus denticulatæ extus inermes. Tibiæ 4-posticæ extus inermes. Clypeus ♂ in cornu furcatum porrectus. Corpus obscurum, nec metallicum (sericeum ?); elytris maculis numerosis pallidis distinctum. Pedes antici longiores. Elytra ad apicem suture sub-bi-spinosa. Tibiæ 2 posticæ intus ad basin setosæ. ♀ ignota.

Char. Specif. Nigra opaca, prothorace albido, linea tenui marginali, altera latiori mediana punctisque duobus rotundatis nigris; elytris tricostatis maculisque 16. fulvis forma et magnitudine subæqualibus ornatis; tarsorum articulis tribus ultimis in pedibus duobus posticis fulvis, unguibus apicibusque nigris.

Long. corp. lin. 17 ♂.

Habitat Mozambique.

Fig. 1, the insect of the natural size; 1 *a*, the same seen laterally; 1 *b*, the underside of the head; 1 *c*, the mentum and base of the head and maxillæ; 1 *d*, the sternum and base of the middle feet.

ASTHENORHINA, *Westw.*

Caput maris inerme clypeo parum emarginato. Mandibulæ margine externo recto (fig. 2 *a*). Maxillæ lobo apicali porrecto acuto apice curvato, dense penicillato, lobo interno inermi (fig. 2 *b*). Mentum apice latè et profunde incisum (fig. 2 *c*). Prothorax lateribus in medio valde angulatis, et pone medium fere rectis et parallelis. Elytra apice integra. Femora antica crassa, apice interne bidentata. Tibiæ anticæ intus inermes rectæ extus pone medium dente rudimentali instructæ. Tibiæ 4-posticæ pone medium externe inermes interne ad apicem emarginatæ et setosæ. Corpus supra opacum subtus nitidum. Sternum vix porrectum (fig. 2 *d*, 2 *e*).

The size of the fore-feet removes this genus from the *Heterorhinæ*, whilst it appears to make the nearest approach to *Tmesorrhina* and *Aphelorrhina*, vol. 1, p. 181.

The name which I proposed for this genus is derived from the Greek, and like those of most of the other groups in this tribe of beetles refers to the form of the clypeus, which in this group is unarmed.

SPECIES UNICA.—*Asthenorhina Turneri*. (Plate 67, fig. 2, 3.)

P. viridis supra opacus interdum fulvo tinctus, elytris parum costatis interdum luteis, fascia longitudinali ex humeris ad tuberculum subapicale extensa viride, sutura nitida, pedibus cupreo plus minusve tinctis, antennis tarsisque nigris; thorace subtus lateribus albido setosis.

Long. corp. lin. 10.

Habitat Africa Tropicali, Ashantee. In Mus. D. Turner.

I am indebted to J. A. Turner, Esq., of Manchester, for an opportunity of adding this interesting species to the list of African Goliath beetles. The kindness of this gentleman, in submitting a considerable number of his rarest insects to the examination of Dr. Burmeister and myself, amply merits the trifling compliment I offer to him in affixing his name to this species.

The plant represented in the plate is the *Grewia pubescens* of Palisot de Beauvois.

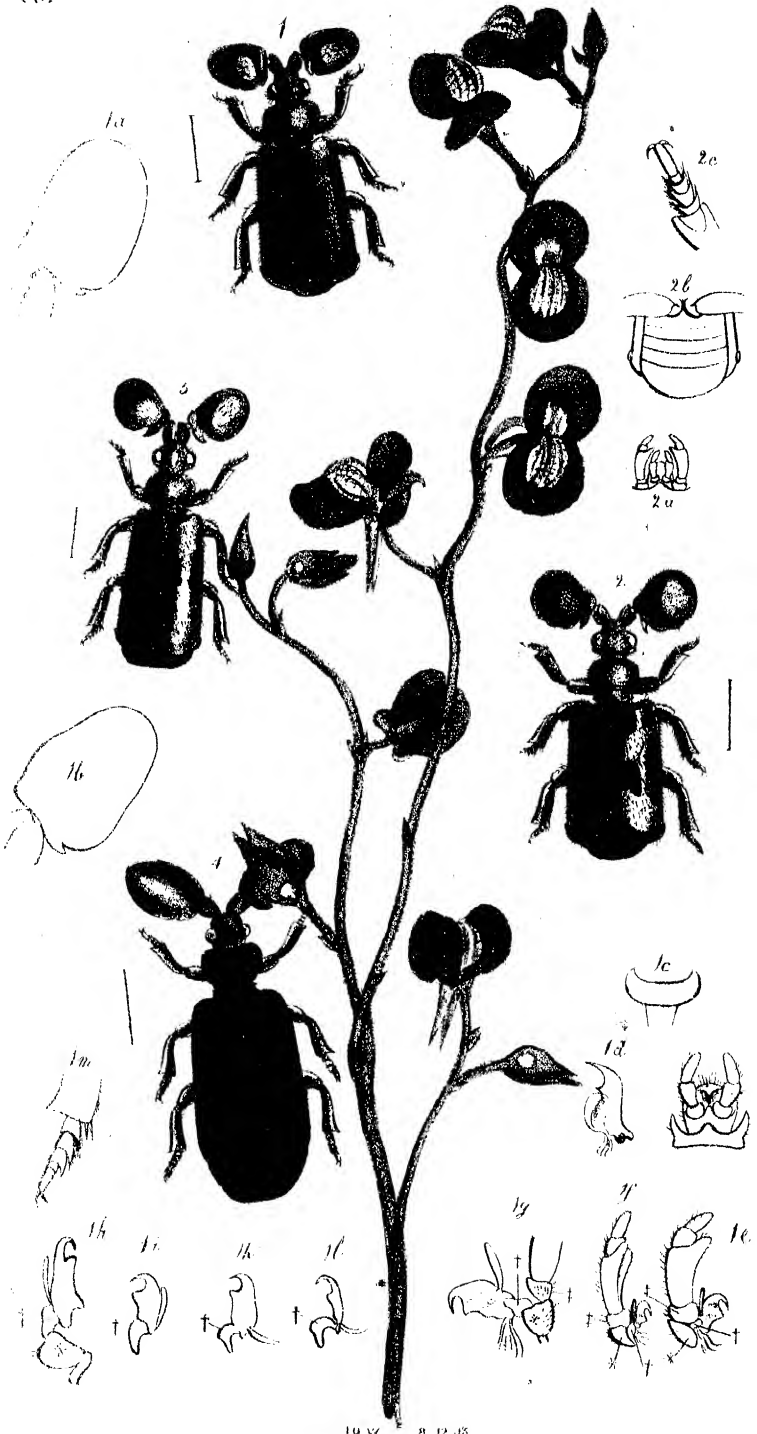


PLATE LXVIII.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

(PART III.)

THE insects belonging to this curious family, which remain to be described in the present monograph, are distinguished from all those described in the two preceding papers (except *Hylotorus Bucephalus*) by apparently possessing only two distinct joints in the antennæ; the second of which is very large and irregular in its construction, occasionally exhibiting the appearance of constrictions, apparently indicating the situation of articulations. This is the case, for example, in a transverse impression near the base of the great joint, in the species figured in the upper part of the accompanying plate, as well as in *Platyrhopalus aplustrifor*; whilst the indentations along the hinder margin of the same joint, in some of the species of *Paussus*, may also, perhaps, be considered as indicating the same rudimental articulation. From *Hylotorus*, the species remaining to be described are distinguished by the possession of a narrow contraction of the head behind the eyes, forming a kind of neck, and by the want of the two ocelli, or ocelli-like tubercles, on the crown of the head.

These species, from the construction of the labial palpi, form two generic groups: one (containing the old types of the genus, and therefore retaining the old generic name, *Paussus*) having the terminal joint of the labial palpi very long and slender, and the two basal joints small; and the other having the two terminal joints of equal length, and generally possessing a large, broad, and subdepressed club to the antennæ, whence, upon the separation of this group from the former, in my paper in the *Linneæan Transactions*, I applied to it the generic name of *Platyrhopalus*. It is to this genus that our attention is now to be directed.

PLATYRHOPALUS, Westw.

(Trans. Linn. Soc. Lond. vol. 16, p. 654.)

Corpus depressum. *Caput* thorace minus, porrectum subquadratum, postice in collum breve contractum. *Oculi* magni prominuli laterales. *Labrum* sub-semicirculare tenue setis duabus antice instructum (fig. 1 c). *Mandibula* cornæ tenuissimæ valde arcuatæ apice in dentem acutissimum terminato, interne uni- vel bi-dentatæ; membranæ tenui sub-

rotundata instructæ (fig. 1 a). *Maxillæ* parvæ lobo basali crustaceo, processu terminali vel interno plano acuto corneo valde compresso mandibuliformi laterne interno uni- vel bi-dentato externoque stylo tenui exarticulato instructæ (fig. 1 e—1 f). *Palpi maxillares* magni 4-articulati articulo basali brevi, 2do maximo apicè interne oblique producto compresso, 3tio subquadrato, 4to tenuiori subovato. *Mentum* breve transversum crustaceum, angulis anticis in spinam longam productis, medioque marginis antici subrotundè porrecto (fig. prox. 1 d). *Palpi labiales* breves 3-articulati porrecti vel reflexi articulo 1mo brevi* duobus ultimis subæqualibus, 1mo crassiori, 3tio tenuiori apice acuto. *Labium* subquadratum basi in lobos duos interne connexos (palpos gerentes) constructum, † margine antico integro, angulis anticis rotundatis. Antennæ magnæ articulis quasi duobus, priori minori compresso, apice obliquè marginato, angulo interiori supra producto ferè conico; tunc articulus? parvus subglobosus emarginaturæ prioris immersus: cui insidet articulus ultimus maximus subplanus valde depressus et inferiori subtransversè impositus; margine omni compresso acuto basi truncatus et externe incisus vel dentatus: etiam juxta basin supernè transversim impressus (articulorum divisionem referens); nec basi uncinatus. Thorax planus brevis transversus latior, lateribus anticis rotundatis. Elytra thorace multo latorum, postice subtruncata oblongo-quadrata depressa angulis posticis externe tuberculo ordinario instructis. *Pedes* breviusculi crassi, *tibiis* dilatatis, calcaribus duobus, ad apicem armatis, angulis externis apicalibus acutis. *Tarsi* breves, 5 articulati, articulis tribus basalibus compressis intus pilosis, 4to minuto‡; 5toque tenui longiori lævi cylindrico, unguibus duobus acutis instructi. *Alæ* ut in *Paussis*. *Abdomen* clytris paullo longius, 4-articulatum articulis duobus intermediis brevissimis ||.

The insects of the present genus appear to be intermediate between those species of *Paussus* which have the prothorax not strongly constricted across the centre, and the *Cerapteri*. In their biarticulate antennæ and the formation of their maxillary palpi, they approach the former; and in the general habit of their bodies, as well as in the formation of the basal joints of their tarsi, and in the tendency to articulation exhibited in the clava of their antennæ, they approximate to *Cerapterus*, *Platyrhopalus angustus*, and the two species which, in the Linnæan Transactions, I described under the names of "*Platyrhopalus? lævifrons*" and "*Platyrhopalus? dentifrons*," (but which I now find, by an examination of their trophi, to be species of *Paussus*,) serve to prove the former relationship, whilst *Platyrhopalus Melleii* sufficiently attests the latter.

In a preceding article (pp. 10—12) I have quoted some observations by Dr. Burmeister, upon the construction of the wings of

* In the Linnæan Transactions (xvi. 655), and *ante* p. 5, the joints of the labial palpi were described as of equal, or nearly equal, length. The present description is made from a very careful recent dissection of *P. denticornis* compared with the other species.

† In the specimen of *P. denticornis* which I dissected fourteen years ago, the basal portion of the labium seemed more regularly divided into two scapes, upon which the palpi are inserted, than in the specimen of the same insect recently examined.

‡ In my paper in the Linnæan Transactions, I overlooked this minute joint, which, however, I detected in *P. Melleii* and *Westwoodii*, Linn. Trans. xvi. p. 684. and Ent. Trans. ii. pl. 10, fig. 4 g, 5 c, 5 d.

|| Mr. W. W. Saunders' unique specimen of *P. Westwoodii* has the appearance of an additional basal articulation, which led me to figure the abdomen as 5-jointed in the Entomological Transactions. I find, however, the articulation is only apparent, and not real.

these insects and the relationship which was thereby supposed to be proved to exist between the Paussidæ and the Carabidæ, as well as the want of relation between the former family and those groups of beetles with which it has been associated by Latreille and other authors, as well as by myself. It is due, however, to Dr. Burmeister, to observe, that it was not upon this character alone that he was induced to affirm this relationship, having carefully reviewed the entire construction of the Paussidæ, and more especially investigated the structure of the maxillæ, considering that “le véritable caractère de la bouche d'un Coléoptère carnassier est la figure de la mâchoire et la construction du mando.”

The following is Dr. Burmeister's description of the maxillæ of *Platyrhopalus denticornis* :—

“Les mâchoires ont un pédicule inarticulé cordiforme extérieurement corné, mais rempli de muscles charnus dans sa partie intérieure, muscles qui meuvent toute la mâchoire, et principalement le lobe interne de celle-ci, que j'ai nommé *mando* ou pièce manducateuse, puisqu'elle est la plus broyeuse, si un insecte prend une nourriture dure et non pas fluide. Cette pièce est d'une grandeur fort remarquable dans les Paussidæ comme les figures de M. Westwood nous le montrent, et a en général la même configuration que chez le *Platyrhopalus denticornis*. J'ai examiné soigneusement la conjonction de ce mando avec la mâchoire, et j'ai trouvé qu'il est fixé à la seconde pièce de la mâchoire, qui forme un petit anneau sur la pièce basale ou stipes. Cet anneau, que l'on peut prendre pour le premier article du palpe maxillaire, a dans son côté interne un petit appendice capituliforme, qui est situé dans une excavation du mando, et fait avec lui une articulation sur laquelle il peut se mouvoir par ses muscles en haut et en bas comme le mouvement broyant l'exige. Tout près, dans l'excavation articulaire du mando, on observe une autre excavation, qui est allongée dans toute sa partie interne et postérieure. Dans cette excavation se fixe un petit style claviforme, qui peut faire avec le mando tous les mouvements quand il est contenu dans le sillon de son côté intérieur. Quand le mando est redressé, ce petit style est caché entre lui et le palpe maxillaire, et c'est pourquoi nous ne voyons pas ce style dans les figures de M. Westwood, excepté dans celle de la mâchoire du *Platyrhopalus Melleii*, où ce style n'est pas seulement inarticulé mais forme un appendice filiforme biarticulé, et tout-à-fait sem-

blable au palpe maxillaire interne d'un Carabique ou Hydrocanthare. Les autres parties de la mâchoire forment le palpe maxillaire."

It is due to Dr. Burmeister to state, that the supposed articulation of this style in *Platyrhopalus Melleii*, as figured by me in the Entomological Transactions (vol. x. ii. pl. fig. 4 c) is apparent only and not real; my notes state it to have been a flat slender appendage "which was twisted in the middle, but not articulated. In the other maxilla, I did not discover it in this position, but after removing the maxilla, I found it lying loose upon one of the mandibles." It is the more necessary to make this statement, because Dr. Burmeister, in his comparison of the structure of the Paussidæ and Carabidæ, has more especially considered this supposed biarticulated structure, as well as the equally supposed dilated hood-like form of the labial palpi in *Pentaplatarthrus*, as precisely analogous to the Carabideous and Cychrideous structure. "On m'objectera," he observes, "que le palpe intérieur de Pausides est inarticulé, et le palpe des Carabiques biarticulé; mais j'ai déjà montré que quelques genres des Paussides, comme le *Platyrhopalus Melleii*, Westw. (qui forme un genre particulier et n'est pas un vrai *Platyrhopalus*) ont des palpes maxillaires internes tri-[bi]-articulés; et l'on voit que ce même palpe chez le *Pentaplatarthrus Paussoides*, d'après la figure de M. Westwood, (Linn. Trans. xvi. pl. xxxiii., fig. 7 c) est dilaté en forme de capuchon, et couvre le mando,* comme dans le genre *Cychrus*, et les congénères chez les Carabiques."

The interest excited by these singular details led me to reinvestigate the structure of the trophi of *Platyrhopalus denticornis*, the result of which is before the student in the lower series of figures in the accompanying Plate; and which differ in several respects from Dr. Burmeister's descriptions. Without attempting to refer the basal portions of the maxilla marked in this and the other plates of the Paussidæ with the marks * and † to the typical structure of the Coleopterous maxilla, I shall merely observe

* The part which in *Pentaplatarthrus* Dr. Burmeister has regarded as a dilated labial palpus, is in fact the real mando; since there is nothing in my figure to which he refers, to indicate a separation between the part which he considers to be the mando, and the basal portion or stipes. Hence two of his proofs of affinity between the Paussidæ and Carabidæ are shown to be untenable.

that the external outer horny piece in *Platyrhopalus*, 1 *e*, 1 *f*, 1 *g*, and 1 *h* *, is hollowed out within, being filled with muscle below, and having on its inner face above, a small curved horny piece †, which is Dr. Burmeister's *petit appendice capitiliforme*, which is, however, shown in my fig. 1 *g*, to have no connexion with the basal joint of the maxillary palpi (†) as Dr. Burmeister describes it; its use also as a socket or fulcrum for the alternate elevation and depression of the hooked mando, appears to me to be altogether gratuitous; as, although I endeavoured to move it in all directions (see figures 1 *h*, 1 *i*, 1 *k*, 1 *l*.) I could not find that it even possessed an independent movement. Indeed, I believe Dr. Burmeister's figure 10 is composed of this small corneous piece †, and the true mando; and that his fig. 8 *a*, and the left-hand portion of his figure 10, are the same organs seen in different positions, and that they have no distinct existence in nature. This small piece †, varies in size in the genera of the present family. I find it in *Paussus* to agree in minuteness with *Platyrhopalus*. In *Cerapterus Hopii* (ante, pl. 50, fig. 5 *d* †) it is much enlarged, and becomes external; and in *Pentaplatarthrus* (pl. 58, fig. 2 *c*) it is very large, assuming the place of the basal part *. The minute exarticulated stylo appears to be restricted to this genus, it having been only found in *P. denticornis* and *Melleii*. It is to Dr. Burmeister that we are indebted for pointing out its analogy with the labial palpi of the Carabideous insects.

The four species represented in the accompanying plate are more especially typical of the group; *P. Melleii* and *aplustri* receding from its general habit, but yet they are not sufficiently distinct to warrant me in separating them generically. *P. lævifrons* and *dentifrons*, as mentioned above, must now be removed to the genus *Paussus*.

SPECIES I.—*PLATYRHOPALUS DENTICORNIS*. (Plate 68, fig. 1.)

P. sublatus, rufo-castaneus, elytris dorso fusco; sutura late ad basin, maculaque utrinque postica rufo-castaneis, antennarum clava magna latero omni acuto continuo at juxta basin externe incisioe parva distincto; thoraco antice utrinque rotundato-dilatato.

Long. corp. lin. $3\frac{2}{3}$, ad lin. 5.

Habitat in India Orientali (Bengalia, &c.) In Museo nostro, &c.

SYN.—*Pausus denticornis*, Donov. Epit. Ins. Ind. Pausus, No. 1, tab. 5, fig. 1; Rees Entomol. pl. 8, fig. 10 and 10*; sine descript. (nec Gyllenhal).

Platyrhopalus denticornis, Westwood, in Trans. Linn. Soc. vol. xvi. p. 657, tab. 33, fig. 43—48, vol. xix. p. 50; Burmeister, in Guer. Mag. Zool. 1841, Ins. pl. 76, fig. 2, &c.

DESCR.—Rufo-castaneus, supra subdepressus undique luteo tenuiter pubescens, nitidus sub lento tenuissime punctatus. Caput antice depressum margine antico parum elevato et in medio submarginato, inter oculos subcanaliculatum canali in parte elevata postica in impressione profundiori terminato. Palpi rufescentes. Antennæ rufo-castaneæ articulo apicali (clavâ) maximo, prothorace majori fere ovato, basi tamen subemarginate truncato, supra in disco parum convexo, subtus magis gibboso, margine omni compresso acuto superne juxta basin (et cum eo parallela) impressione transversâ, quæ ad marginem posticum in incisionem parvam et angustam desinit, angulo basali (dentem formante), externe subrotundato; incisione interne tamen fere recta, inde apex dentis subobtusius apparet. Prothorax brevis transversus basi apiceque truncatus antice multo latior et elevatior, lateribus rotundato-dilatatis juxta vel paulo ante basin, subemarginatis, ibique depressus, et utrinque foveâ transversa brevi parva. Elytra prothoracis parte antica latiora et illo quadruplo longiora, oblongo-quadrata, basi transversim impresso, rufo-castanea, disco nigro plaga magna subtriangulari basali, sutura maculisque duabus posticis ovalibus relictis rufo-castaneis. Tibiæ dilatatæ compressæ, angulo externo apicali presertim in posticis, acutis, 2-calcaratis. Corpus totum infra rufo-castaneum, segmento anali abdominis margine postico rotundato.

Obs.—Fig. 1 represents the insect magnified; 1 *a*, the antennæ of the usual form; 1 *b*, the antennæ of another specimen, in the collection of M. Dupont, where it is incorrectly named by him Pl. Mellei? and which is rather darker than the ordinary specimens, but not otherwise distinct, either in structure or markings. I presume this difference in the form of the clava of the antennæ may be sexual; at all events, I cannot regard it as a specific distinction, unaccompanied by other characters.

Fig. 1 *c* represents the labrum, 1 *d* the mandible, the figure not numbered, to the right of which is the mentum, labial palpi and labium; 1 *e* the maxilla seen from below; 1 *f* the same seen more from within the mouth; 1 *g* the basal portions separated, and basal joints of the palpi; 1 *h* the maxilla with the palpi entirely removed; 1 *i*, 1 *k*, and 1 *l*, the mando, and its basal piece, and the maxillary palpus seen in different positions; 1 *m* the extremity of the posterior tibia and tarsus.

SPECIES II.—*PLATYRHOPALUS WESTWOODII*. (Plate 68, fig. 2.)

P. latus, rufo-castaneus, clytris plaga magna triangulare ad basin alterisque duabus lateralibus, fascia que tenui irregulari ad apicem nigris; antennarum clava magna subrotundata margine postico parum undulato, et versus basin late incisa angulo externo acuto. Long. corp. lin. 4.

Habitat in India Orientali. Mus. D. W. W. Saunders, F.L.S., etc.

SYN.—*Platyrhopalus Westwoodii*, Saunders in Trans. Ent. Soc. Vol. ii. p. 84, pl. x., fig. 5. Westwood in Linn. Trans. xix. pl. 51.

Præcedenti latior: rufo-castaneus, nitidus sub lento tenuissime luteo setosus et punctatus. Caput antice planum vix emarginatum linea tenuissima impressa e margine antico versus verticem extensa, impressionibus que duabus vix distinctis ad marginem internum oculorum; antennarum clava magna fere rotundata, supra et infra fere æque convexa margine postico parum undulato, et versus basin incisione profundiori et latiori denteque multo acutiori armata. Prothorax postice angustior lineisque tribus transversis vix distinguendis Elytra lata, rufo-castanea ad basin plaga magna communi dilatato-cordata, maculaque magna subtriangulari utrinque, fasciæque tenui irregulari apicali, nigris. Tibiæ ad apicem emarginatis in dentem externum acutum terminatæ. Podex niger nitidus.

Obs.—Fig. 2 *a* represents the lower parts of the mouth in situ (more correctly than in Trans. Ent. Soc. ii. pl. x., fig. 5 *a*.) 2 *b* the abdomen seen from beneath; and 2 *c* the tarsus with the emargination of the apex of the tibia.

SPECIES III.—*PLATYRHOPALUS ANGUSTUS*. (Plate 68, fig. 3.)

P. brunneo-castaneus; clytris angustioribus, singulo macula magna laterali triangulari nigra, antennarum clava magna rotundata, subconvexa margine postico continuo at versus basin late incisa, dente acuto armato. Long. corp. lin. 3.

Habitat in India Orientali. Neemuck, D. E. T. Downes.

Corpus totum nitidum parce pubescens, rufo-castaneum : caput antice vix emarginatum, linea longitudinali vix impressa verticem fere attingente. Antennarum clava prothoracis magnitudine margine omni acuto ; externo vero prope basin incisione lata et profunda dente basali acuto. Prothorax capite paullo latior, lateribus antice rotundatis postice paullo angustior (sc. cordato-truncatus) impressione tenui transversa pone medium. Elytra thorace vix dimidio latiora angulis humeralibus prominentibus rotundatis, singulo cum tuberculo ordinario ad angulum posticum externum instructo, rufo-castanea, singulo macula magna triangulari nigra versus medium suturam fere attingente. Abdomen apice nigro, subtus 4-articulatum. Pedes castanei tibiis mediocriter dilatatis, apice oblique truncatis.

This species was collected in the interior of India, at Neemuck, by Assistant-Surgeon E. T. Downes, who informs me that he caught a single specimen in his room by lamplight, having observed it crawling on his table.

SPECIES IV.—*PLATYRHOPALUS ACUTIDENS*.

SYN.—*Platyrhopalus acutidens*, Westw. In Lin. Trans. xvi., p. 661, pl. xxxiii., fig. 50. Ditto xix., p. 51.

This species was proposed by me upon an incomplete specimen, preserved amongst the insects brought from Nepaul by Maj.-Gen. Hardwicke, and now in the British Museum, of which the elytra, legs, and abdomen are wanting. The head and prothorax are smaller and darker-coloured than in *P. denticornis*; the prothorax is proportionably rather longer; the eyes are black; the head rounded and subdepressed in front, and not emarginate; the internal margin of the clava of the antenna exhibits a stronger contraction at the base than in that species, and the incision on the outer edge is much wider; and the basal tooth very acute. In some of these respects it approaches *P. angustus*; but, until a more complete specimen is obtained, it is impossible to determine whether it be identical therewith or not. The regular hind margin of the clava of the antenna, separates it from *P. Westwoodii*.

SPECIES V.—*PLATYRHOPALUS UNICOLOR*. (Plate 68, fig. 4.) (Copied from Schönherr.)

P. latus brunneo-castaneus, antennarum clava magna ovata compressa juxta basin externe incisa; dente obtuso, prothorace antice utrinque rotundato dilatato. Long. corp. (see fig. Schönherr), lin. 4 $\frac{1}{2}$.

Habitat in India Orientali. Dom. Pro. Schumacher.

SYN.—*Platyrhopalus unicolor*, Westw. In Linn. Trans., xvi., p. 659, tab. xxxiii., fig. 49. Ditto, vol. xix. p. 50.

Pausus denticornis. Megerle, Illig. Mag. 3, 113, not. (absque descr.) Gyllenhal in Schönh. Syn. Ins. tom. I pars iii. Appendix p. 14, tab. 6, fig. 1. Schönh. id. p. 19, no. 5. Dalman, Anal. Ent. p. 103, sub Hylotoro Bucephalo.

In Mus. Schönherr, Gyllenhal et Dejean.

Totus brunneo-castaneus; supra subdepressus tenue pubescens, nitidus obsolete punctatus; caput subquadratum nitidum supra obsolete canaliculatum et e figura Schönherri, vix antice emarginatum; antennarum clava maxima fere ovata disco parum convexo, subtus magis gibbosa, in margine externo profunde incisa. Prothorax brevis transversus antice multo latior lateribus rotundato dilatatis, pone medium cito coarctatus, anterieus convexus posterius depressus et striga media transversa abbreviata impressus. Elytra humeris antorsum prominentibus castanea sub-nitida. Corpus subtus brunneo-castaneum nitidum. Pedes breviusculi pallidius castanei, valde compressi tibiis dilatatis.

In consequence of the priority of Donovan's specific name, *denticornis*, I have considered it necessary to give this another denomination, and which has reference to the uniformity of its colour, by which it is distinguished from the preceding species.

The curious leafless plant represented in the plate, is the Indian *Utricularia reticulata*.

Want of space, in a preceding page, prevented me from giving the following summary of Dr. Burmeister's views of the relations of the Paussidæ with the other carnivorous families, which I now add; there will be occasion to refer to it in my observations on the genus *Paussus* in a future number.

“ Les Carnassiers sont Déterminés et Partagés de cette Manière.

Colcoptera carnivora seu adepaga.

Mandibulæ arcuatæ, cornæ, maxillarumque mandones cornei, elongati, sæpissime uncinati, setosi vel ciliati, rarius nudi. Maxillarum galea, sive palpæ maxillares internæ, sæpissime filiformes, biarticulatæ, rarius uniarticulatæ vel nullæ. Mentum transversum in apice bisinuatum, extus dilatatum; ligula libera, mobilis, extus stipite corneo suffulta. Femora pedum posticorum connata cum pectore extus acuminata; trochanteres pedum fulcrantes. Alæ pilosæ, vena radialis cellula transversa in apice terminata.

I. Geolestes. Pedibus ambulatoriis; capite oxserto, collo plus minusve elongato.

1. Antennæ 11-articulatæ, filiformes, rarius moniliformes vel depressæ versus apicem. Maxillarum galea semper biarticulata elongata, interdum cucullata, sæpissime filiformis 1 Carabidæ.

2. Antennæ 2-10-articulatæ, vel omnino depressæ, latæ ellipticæ, vel lentiformes, vel irregulariter clavatæ. Maxillarum galea sæpissime styliformis uniarticulata, interdum obsoleta rarius cucullata 2 Paussidæ.

II. Hydrocanthari. Pedibus natatoriis sæpissime compressis ciliatis.

1. Antennæ filiformes, rarius medio paululum incrassatæ vel in apice depressæ. Oculi duo. Maxillarum galea semper biarticulata, filiformis, interdum minuta 3 Dyticidæ.

2. Antennæ clavatæ, primo articulo dilatato, auriculato; maxillarum galea obsoleta vel nulla. Oculi quatuor 4 Gyrinidæ.”



PLATE LXVIII.

ILLUSTRATIONS OF A NEW SPECIES OF PAPILIO FROM MELVILLE ISLAND.

PAPILIO CANOPUS, *Westwood*.

Annals of Nat. Hist., April, 1842.

(Plate 68, fig. 1, and 1*, male; fig. 2, female.)

P. alis latis; posticis sinuatis et breviter caudatis; incisuris albis, omnibus supra fuscis; anticis fascia sub-apicali e maculis novem albidis; posticis fascia pone medium e maculis septem, lunulâ tenui cæruleâ (puncto fulvo in fœminâ adjecto), ad angulum ani; alis subtus concoloribus, posticis vero maculis transversis ex atomis cæruleis pone fasciam macularem, maculisque vel arcubus pallidis (in fœmina fulvo-tinctis), ante incisuras albidas apicales.

Expans. alar. unc. $3\frac{1}{2}$, 4.

Inhabits Melville Island, on the north coast of New Holland. In the Collection of the Rev. F. W. Hope, and the British Museum.

This species is most nearly allied to *Papilio Pammon*, from which it however differs in its considerably broader wings, the fore pair of which are further distinguished by the fascia of large white, or pale buff spots, separated from each other by the dark veins of the wings and by the analogous fascia in the hind wings which runs more regularly parallel with the apical margin of these wings, whereas in *P. Pammon*, the anterior edge of this row of spots forms nearly a straight line. The disc of the wings, both above and below, is also much less glossed with the minute fulvous scales than in *P. Pammon*.

The male has the fascia on the fore-wings much more strongly defined than the female, and of a more buff colour. In the hind wings of this sex above, the fascia is followed next the anal angle by a very slender blue lunule, and there are some blue scales forming very nearly obsolete patches behind the next two inner pale spots; on the under side, however, these blue patches are of large size, and distinct behind each of the large cream-coloured spots forming the fascia, the one next the anal angle having a scarcely visible orange lunule behind it. On this side also between the blue patches and the white incisions is a row of dirty buff spots,

each resting upon a patch darker than the disc of the wing. The female has the fascia of the fore-wings nearly interrupted beyond the middle of the wing, especially on the upper side, the slender blue lunule next the anal margin is succeeded on the upper side by a small orange transverse spot, and some orange scales resting on a darker brown patch are seen between the fascia and pale marginal incisions. The extremity of the hind wings is much more varied beneath than above, the white fascia being followed by blue lunules (not so large as in the male), and these by transverse black patches, bearing buff-coloured lunules: the white incisions are also of larger size than in the males.

The species is named in allusion to Canopus, one of the Southern constellations.

The plant represented in this Plate is the Australian *Persoonia ferruginea*.

TO A BUTTERFLY SEEN IN MID-WINTER.

[At the last meeting of the Entomological Society, February 5, 1844, a beautiful specimen of *Pontia Rapæ*, evidently just disclosed from the chrysalis, was exhibited by F. Bond, Esq., which he had captured during the preceding month.]

Child of the Summer! what dost thou here,
 In the sorrow and gloom of the weeping year;
 When the roses have withered that bloom'd on thy birth,
 And the sunbeam that nurs'd thee has passed from the earth?
 The flowers that fed thee are frozen and gone—
 Thy kindred are perished, and thou art alone—
 No one to welcome—no one to cheer—
 Child of the Summer! what dost thou here?
 Yet 'tis sweet thy gossamer wing to view,
 Revelling wild in the troubled blue—
 Heeding nor rain, nor snow, nor storm—
 Buffeting all with thy tiny form.
 Even thus the hope of our summer days,
 In the heart's lone winter gaily plays—
 Thou art the type of that hope so dear:
 Child of the Summer! thou 'rt welcome here!
 Welcome 'mid sorrow, and gloom, and showers,
 Emblem of gladness that once was ours—
 Emblem of gladness that yet will come,
 When the sun-bright ether will be thy home;
 And myriads of others, as bright as thou,
 Will revel around us—all absent now:
 Emblem of hope to the mourner dear,
 Child of the Summer! thou 'rt welcome here!

Dublin Penny Journal.

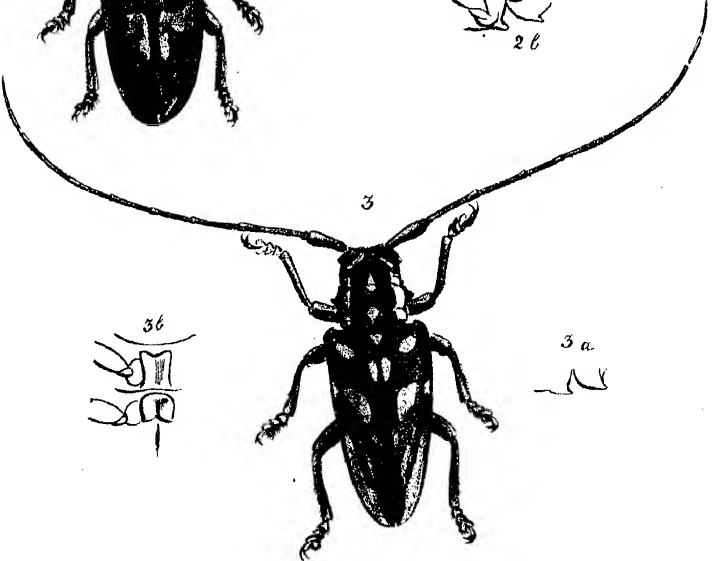
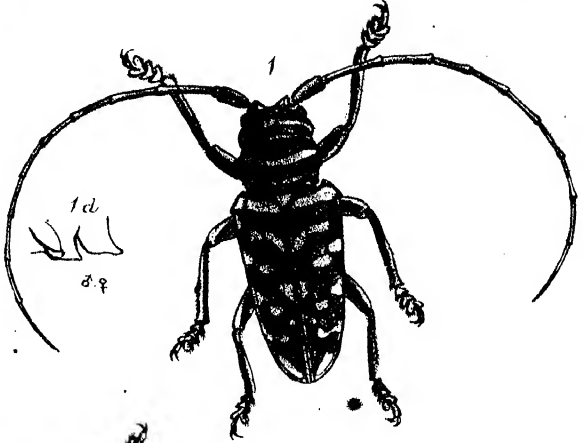
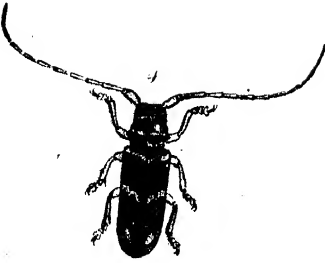


PLATE LXIX.

ILLUSTRATIONS OF SOME SPECIES OF LONGICORN BEETLES FROM
TROPICAL WESTERN AFRICA.

THE African Longicorn beetles belonging to the section, of which *Lamia regalis* may be considered as the type, are amongst the most beautiful species of the entire group; and as our collections are particularly rich in them, I propose to devote a few Plates in the present volume of this work to their illustration. In the present Plate four new species are represented from the cabinets of the Rev. F. W. Hope, A. Melly, Esq., and my own collection.

The species represented in Nos. 1, 2, and 3, belong to the genus *Sternodonta* of De Jean. This group was first pointed out and characterised by me ten years ago, in a paper published in the first volume of the Transactions of the Entomological Society of London, having been omitted by Serville in his revision of the Longicorn beetles. I forbore, however, to propose a separate name for the group, which was subsequently adopted by M. Perchéron, in the "*Genera des Insectes*," where the name of *Sternotomis* was given to it, which name must be adopted in preference to that proposed by De Jean, the characters of which were only for the first time published in the "*Histoire Naturelle des Animaux Articulés*," Vol. III., p. 474.

The species represented in No. 4, belongs to the genus *Tra-gocephala* of De Jean and Serville.

SPECIES I.—*LAMIA* (*STERNOTOMIS*), *VIRESCENS*, Hope MS.

(Plate 69, fig. 1, and details.)

L. nigra, æneo-pulverulosa, capite, pronoto et elytrorum basi albo-virescenti fasciatis, his etiam maculis variis albo-virescentibus ornatis.

Long. corp. lin. 16.

Habitat apud Sierram Leonam.

The head is deeply notched in front, with a streak down the middle of the face dilated towards the mouth, the labrum, some patches beneath the eyes, and a fascia which runs behind them entirely across the head, of a pale silvery green colour. The man-

dibles of the male are large, and each has a strong elevated tooth on the upper side near the base (fig. 1 *a*, head of the male; 1 *b*, head of the female); the pronotum is traversed by three slender fasciæ of the same colour as the scutellum, and a fascia next the base of the elytra is also of the same colour, as well as a number of spots which are so arranged as to form a successive series of much interrupted angulated strigæ, the points of the angles being directed backwards. All these marks are produced by a fine silky pubescence; the remainder of the disc of the elytra being black and punctured, the sutural edges, and two slender costæ on each rather elevated, and the sides finely clothed with an æneous powder. On the under side the body is black, and varied with silvery green markings, which mostly form angulated fasciæ, the angles being directed towards the head. The pro- and meso-sternums are large, flat, prominent, and truncated in front, in both sexes (fig. 1 *c*, 1 *d*). The antennæ of the male are longer than those of the female.

SPECIES II.—*LAMIA* (*STERNOTOMIS*) *PALINII*, Hope MS.

(Plate 69, fig. 2, and details.)

L. supra omnino pulverosa nigro, glauco, viridi fulvoque varia, pronoti macula utrinque et margine postico, elytris striga obliquâ ex humeris ad medium fere ducta fasciâque media, fulvis.

Long. corp. lin. 12—15.

Habitat apud Sierram Leonam. In mus. D. Hope, Dr. Savage.

The face is prettily varied with pale green and orange, separated by black lines. The hind part of the head has a black triangular spot (extending on each side behind the eyes), and divided into two parts by a very slender pale line. The pronotum is opaque dull green, with two short black diverging lines extending from the front margin to the middle of the disc; the front margin on each side is orange-coloured, and near each of the lateral spines is a large transverse oval patch of the same colour, edged with a black line; the hind margin is also fulvous; the elytra are dull opake green, with brighter silvery patches, especially beyond the middle; from each humeral angle nearly to the middle of the suture runs an oblique fulvous bar edged with black, and across the middle is a broad waved bar, also edged with black; terminating next the suture is a reflexed pale green patch. The body

beneath is fulvous, with the middle of the abdominal segments black and shining.

The sternums (figs. 2 *a*, 2 *b*) although porrected, are not near so large as in the last-described species.

SPECIES III.—*LAMIA (STERNOTOMIS) AMENA*. *Westw.* (In *Annals of Nat. Hist.* October, 1841.)

(Plate 69, fig. 3, and details.)

L. nigra, opaca, pronoto maculis duabus conoideis, lateribusque; maculis circiter 10 (magnitudine variis), lateribusque elytrorum viridi-lacteis; duabus in medio elytrorum maximis alterisque duabus posticis elongatis et valde angustis.

Long. corp. lin. 11—16.

Habitat in Africa tropicali (Gold Coast), D. Raddon. In mus. Melly et nostro.

This very distinct species has the face black, with a silvery green line running from the inner margin of each eye nearly to the mouth, where it meets an angulated slender line of the same colour, extending across the lower part of the face; there is also a small spot of the same colour behind, and another beneath each eye. The entire sides of the prothorax, except the spines, are cream-coloured; the two spots on the elytra near the base of the suture are nearly connected. The thoracic segments beneath are pale buff, and the abdominal segments black and glossy, with four pairs of round spots of pale silvery green, and two other oblong patches of the same colour on the terminal segment. The sternums (figs. 3 *a*, 3 *b*), are less prominent than in either of the preceding species, although resembling those of *L. Palinii* in form.

I am indebted to W. Raddon, Esq., for this and other interesting insects from the Gold Coast.

SPECIES IV.—*LAMIA (TRAGOCEPHALA) PULCHELLA*. *Westw.*

(Plate 69, fig. 4, and details.)

L. supra nigra opaca pronoti marginibus antico et postico guttulisque numerosis elytrorum late viridibus, fasciaque media pronoti, basi et medio elytrorum maculisque duabus apicalibus fulvis.

Long. corp. lin. 8.

Habitat apud Sierram Leonam. In mus. D. Hope.

This lovely insect in its cylindric form agrees with the other *Tragocephalæ* of De Jean; but from all of these it differs in its colours, which in their contrasts and arrangement resemble those

of some of the Sternotomes. The face is green with a slender line of black down the middle; the labrum is fulvous; the upper part of the head black, with a green margin to the eyes. The antennæ and pronotum jet black, except the basal joint of the former and the front and hind margins of the latter, which are splendid green; across the middle of the pronotum runs an irregular slender fulvous fascia. The body beneath is splendid green with the sides of the metasternum fulvous, and a triangular patch in the middle of the hind margin of each segment, which is black and glossy. The mesosternal process is small and scarcely prominent (figs. 4 *a*, 4 *b*).

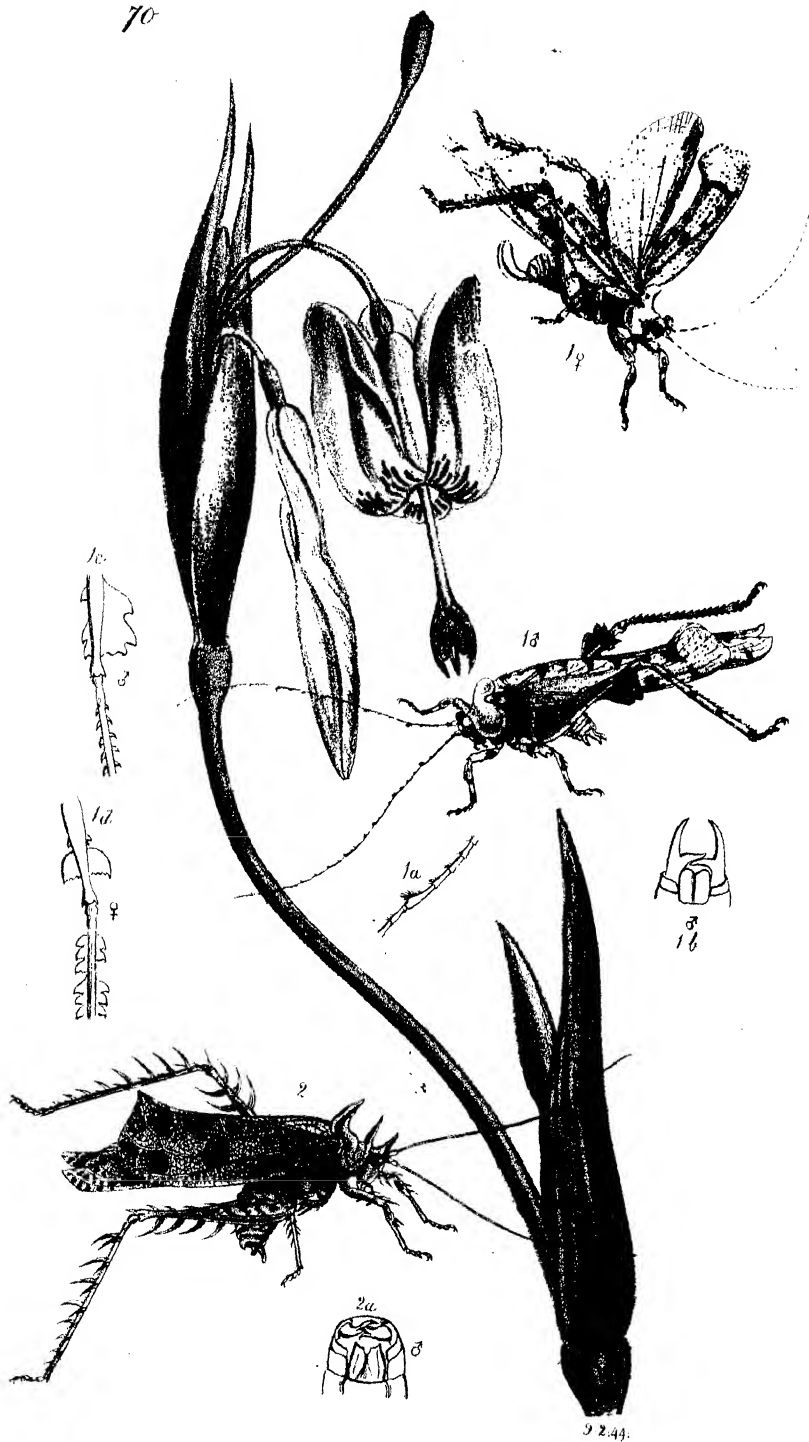


PLATE LXX.

ILLUSTRATIONS OF TWO NEW SPECIES OF GRASSHOPPERS FROM COLOMBIA AND MEXICO.

—♦—

THE insects represented in the accompanying Plate are here referred to the genus *Phaneroptera* of Latreille, with the general structure of which they best agree; they possess, however, such singular characters in the spinose and foliaceous appendages with which they are armed, and the antennæ in the males of one of them are so curious, that I presume that they will by some writers be regarded as proper subjects, requiring the establishment of distinct sub-genera for their reception.

SPECIES I.—PHANEROPTERA ALIPES. *Westw.*

(Plate 70, fig. 1 ♂ and 1 ♀, and details.)

P. pallide albo-virescens, tegminibus angustis apice intus dilatatis; margine interno nigro maculato fasciæque obliqua paullo ante apicem, capite inter oculos mucronato, antennis, in mare saltem, fasciculato-nodosis, femoribus posticis foliis latis subapicalibus instructis.
Long. corp. lin. 8. Expans. alar, post. ♂ lin. 32. ♀ lin. 29.
Habitat in Colombia, Mus. D. Hope, ♂; et in Mexico. Mus. nostr. ♀. Communic. D. Parry, F.L.S., &c.

The eyes are very prominent and globose in this species, and between them is an acute point, more prominent in the female. The antennæ of the males are very slender, and appear to consist of portions measuring about two lines each, which are not continuous as in the other species, the extremity of each portion terminating in a little dilatation which is setose* (fig. 1 *a*). From what remains of the antennæ of my female specimen, they appear to have been destitute of these nodosities. The face of the female is considerably wider than that of the male, which occasions a corresponding dilatation of the lateral margins of the pronotum, which in this sex have a small lobe or extension over the fore feet, which does not exist in the male. The pronotum is strongly saddle-shaped, the lateral angles of the raised part in the female being more elevated than in the male. The wing-covers are considerably more elongated in the males than in the females; in both sexes they are similarly marked with black spots. The wings are colourless, except the small apical portion which extends when at rest beyond the wing-covers. The sternums are simple. The feet are most slender and elongated in the males; they are of the colour of the body, but fasciated or annulated with black; the four

* Dr. Burmeister describes a species from Bahia, with apparently similar antennæ, *Ph. nodicornis* (Handb. der Ent. 2, p. 689); but the specimen he described (from the collection of his father-in-law, my excellent correspondent, M. C. Sommer, Esq., of Altona), was a female.

anterior femora and tibiæ, are slightly foliaceous, especially in the female; but the hind femora in the males are furnished near the tips with a large thick black leaflet on the outside, the hind tibiæ having two rows of serratures (fig. 1 *c*), whilst in the female the femora have two nearly equal-sized leaflets*, and the tibiæ are furnished with dilated, dentated portions, which give them a very curious appearance (fig. 1 *d*.) The terminal ventral segment of the male is emarginate at the tip, and the anal appendages elongated, acute, slightly recurved, and furnished within with a strong tooth (fig. 1 *b*.) The ovipositor of the female is broad and bent upwards from the base.

SPECIES II.—PHANEROPTERA HYSTRIX. *Westw.*

(Plate 70, fig. 2.)

P. lutescens capite spina erecta pronotumque duabus armatis; tegminibus quasi punctatis, apice interno acuto, viridi albido nigroque variis, alis haud coloratis nisi in apicibus; pedibus posticis spinis acutissimis et longis armatis.

Long. corp. lin. 10. Expans. alar. posticar. lin. 31.

Habitat in Colombia. In mus. D. Hope.

This extraordinary insect has the tubercle between the eyes developed into a strong acute compressed spine, which with two others rising from the pronotum serve to defend the front of the body; these horns have a black line extending along them. The tegmina are variegated with pale and darker green with black patches, the veins being elevated and pale-coloured, giving them the appearance of being throughout deeply punctured; the same appearance is also presented by the exterior apical portion of the wings; the anterior femora and tibiæ have a few short spines, but the hind feet are armed, both within and without, with long and acute spines, placed at the distance of about a line apart, which decrease in length towards the extremity of the tibiæ; these feet are marked with bars of green and black, and the spines of the femora (which are curved) are black along their front edge. The terminal ventral segment is emarginate, and extends beyond the two anal appendages, which are incurved, pointed, horny, and bifid (fig. 2 *a*.)

This fine insect is unique, in the collection of the Rev. F. W. Hope, F.R.S., &c.

The plant represented in this Plate is the charming *Rigidella flammea* of Lindley, from Mexico.

* Dr. Burmeister, op. cit., p. 691, describes another species of *Phaneroptera* from Rio Janeiro, with foliaceous black spines on the hind femora (*P. cruenta*), also from the collection of M. C. Sommer, Esq.

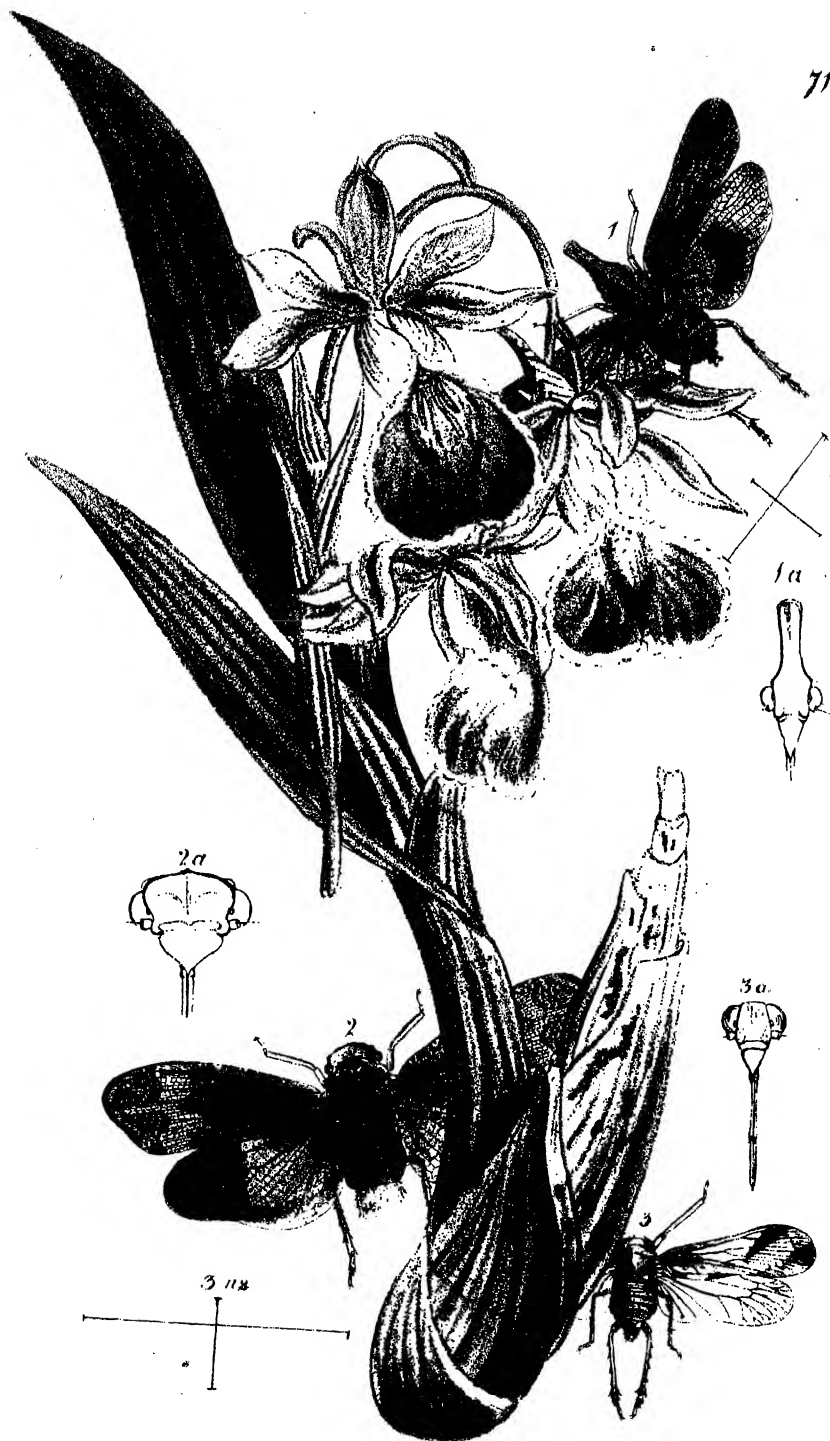


PLATE LXXI.

ILLUSTRATIONS OF SOME NEW FULGORIDÆ FROM COLOMBIA AND MEXICO.

FULGORA (EPISCIOUS?) AMABILIS, *Westw.*

(Annals of Nat. Hist., April, 1842.)

(Plate 71, fig. 1.)

F. rostro (thoracis longitudine, supra plano, subconico apice subtruncato) capite pro- et meso-
notis griseo-fuscis, metanoti et abdominis dorso testaceo maculis nigris; alis anticis
brunneo-fuscis apice pallidioribus, fusco-nebulosis; posticis basi fulvis medio fuscis
apice hyalinis.

Long. corp. lin. $5\frac{1}{2}$. Expans. alar. lin. $10\frac{1}{2}$.

Habitat Mexico. In Mus. Hope et nostr.

THIS elegant little insect, in its elongated flattened rostrum, agrees with the *Fulgora platyrhina* of Germar and my monograph published in the Linnæan Transactions, vol. xviii., (which the Marquis Spinola* and M. Serville† have separated as a distinct genus, under the name of *Episcius* Spinolæ). It differs from it, however, in its rostrum being more elongated, with both the upper and under surfaces more entire, and especially in the narrow, ordinary form of the fore wings. The structure of the anal appendages is also different. These differences are, probably, in this group, of not higher than specific value; and hence possibly the *Aphana corticina* of Burmeister (a Brazilian insect, measuring nearly $2\frac{1}{2}$ inches in the expanse of the fore wings, quite distinct from the *Dilobura corticina* of Spinola, which measures only 22 lines in expanse), as well as Spinola's species (which M. Serville has named *D. Spinolæ*), and another closely-allied Brazilian insect in my own collection,‡ ought, probably, to be reduced into one group, distinguished by the elongated and flattened rostrum. § This group is peculiar to the New World, for *Homalocephala*, the Old World type, (consisting of African and East Indian species,) the only other group with a flattened poirected forehead, can scarcely be said to have the

* Ann. Soc. Ent. de France, 1839, p. 252.

† Hist. Nat. Ins. Hemipt., 1843, p. 494.

‡ *Dilobura subocellata*, Westw. Albido-lutescens fronte subtus subtricarinato et nigro-marginato, capite et thorace supra rugosis, abdomine nitido segmentis basi utrinque nigro-maculatis, alis anticis albido-lutescentibus fusco subreticulatis maculisque rotundatis luteis, versus apicem alarum magis indistinctis, alis posticis albis, pedibus supra nigro-maculatis tibiis posticis extus 6-spinosis, spinis apicalibus haud inclusis.

Long. corp. lin. $9\frac{1}{2}$. Expans. alar. antic. lin. 30. (unc. $2\frac{1}{2}$).

Habitat in Brasilia interiori. Mus. Westw.

§ *Fulgora planirostris* of Donovan (Ins. N. Holl.), which Serville refers to the genus *Homalocephala*, belongs to the Cicadellideous, not to the Fulgorideous section of the family.

rostrum elongated, and it is also distinguished by having the costal portion of the fore wings not homogeneous, and shorter feet.

LYSTRA COMBUSTA, Westw.

(Plate 71, fig. 2.)

L. capite supra obscure carnosio margine antico parum elevato; pronoto obscure virescenti margine postico tenui fulvescenti, mesothoracis scutello metanotoque et basi abdominis nigris his sanguineo maculatis et abdomine sanguineo apice albo floccoso; pedibus castaneo-rufis obscuris, alarum anticarum dimidio basali rufescenti-fulvo, nigro reticulato maculis rotundatis concoloribus, pone medium fascia lata valde undulata et in medio postice angulato lutea; spatio apicali relicto nigro venis viridibus strigaeque tenui submarginali lutea, alis posticis fulvis basi sanguineis dimidio apicali fuscis.

Long. corp. lin. 10. Expans. alar. anticar. lin 30 (unc. $2\frac{1}{2}$).

Habitat in Colombia. In Mus. Hope.

CLADOPTERYX OBLIQUATA, Westw.

(Plate 71, fig. 3.)

C. lutco-fusca pronoto et abdomine albido irroratis, apice scutelli et metathoracis albidis, carina mediana abdominis virescenti, alis omnibus hyalinis, anticis fascia abbreviata triangulari substigmaticali, macula apicali, ulterisque tribus versus basin alarum ad marginem internum fuscis; tibiis posticis extus 5-dentatis: fronte subtus albido-irrorato fascia tenui ad basin labri ad latera mesosterni utrinque extensa, albida.

Long. corp. lin. $5\frac{1}{2}$. Expans alar. anticar. lin. 16.

Habitat in Colombia. In Mus. D. Hope.

The name Cladodiptera, proposed by the Marquis Spinola (Ann. Soc. Ent. de France, 1839, p. 316), being grammatically incorrect, was altered by Serville and Amyot (Hist. Nat. Ins. Hémipt. p. 503), to Cladypha, with the remark that they would have employed the more correct name of Cladoptera, had it not been already employed by the former of them for a genus of Orthoptera. Such, however, is not the case, as there is no such genus of Orthoptera. I presume that the name Cladoxerus (*Serv.*) was the one here intended. I have, therefore, retained the name originally proposed, but altering its termination, in order to distinguish it from the ordinary names of the orders of insects.

This species differs from the type of the genus *Cl. macrophthalma* of Spinola, in being larger, that measuring only 11 lines in expanse, and in the broad continuous sub-stigmatal spot, the apical cloud, and the position of the spots on the inner margin, towards the base of the fore wings. That species is a native of Brazil.

The plant represented in the Plate is the Orchidaceous *Galeandra Baueri*, (*Batem.*) a native of Mexico.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW BOOKS, &c.

(No. XVIII.)

ON THE LARVÆ OF INSECTS WHICH CONSTRUCT A COMMON ENVELOPE, WITHIN WHICH THEY UNDERGO THEIR TRANSFORMATIONS IN SOCIETY.—At the meeting of the Linnæan Society, on the 6th February, 1844, a paper was read by J. Curtis, Esq., F.L.S., containing the descriptions of the nests of two species of Brazilian Hymenoptera. One of these insects belonged to the family Tenthredinidæ, and to one of the divisions of the genus *Hylotoma*, having furcate antennæ in the males like *Schizocerus*, and which Mr. Curtis considered necessary to separate from the rest under the name of *Deiloceras*. The sexes in this species varied greatly from each other in colour, but the chief interest of the communication consisted in the description of the nest formed by the larvæ previous to their assuming the pupa state, and to the close juxtaposition of the hard cocoons which, in a section of the nest, had very much the appearance of a piece of honeycomb. The outer covering of the mass of cocoons was composed of a thick tissue of threads, spun close together, having very nearly the appearance of the large coverings of the eggs of the Mantidæ.

This instinct of larvæ congregating together, and spinning a thick general covering previous to assuming the pupa state and forming their cocoons, is of very rare occurrence; and hitherto no instance has occurred in which the cocoons were so systematically arranged side by side, so as, when cut through, to afford the appearance of hexagonal cells. In the family to which the species described by Mr. Curtis belongs, are found some of the species of the genus *Lophyrus* social in the larva state, living under a common web, which they quit, however, previous to becoming pupæ. The *Nematus* of the gooseberry, however, undergoes its transformations in society, the end of the cocoon of one specimen being attached to another; * and Messrs. Kirby and Spence mention a still more analogous circumstance occurring in the same family.† Some of the little parasitic Ichneumonidæ, belonging to the genus *Microgaster*, construct their cocoons in close contact together, so as in

* Mod. Classif. of Ins. II., p. 104.

† Introd. I., p. 405, 6th Edit.

fact to resemble the cells in a miniature bee-hive.* In other orders I am only aware of this social instinct in the following instances. Reaumur states of the caterpillars of the processionary Moths, which reside in large common tents or nests, "*C'est dans leur nid que ces chenilles doivent perdre leur forme et devenir chrysalides ;*" and that those of the destructive *Yponomeuta Evonymella*, which reside in a similar web, construct their cocoons "*à un des bouts de leur dernier nid.*" In the first part of the Transactions of the Entomological Society, I published an account of a gregarious species of Butterfly from Mexico, in which the chrysalides are arranged within the nest formed by the caterpillars, and which very nearly resembles that of some wasps ; and in my memoir upon the Pomegranate Butterfly of the East Indies, also published in the same Transactions, I described the social peculiarities of that insect, the chrysalides of which are placed in society within the fruit, previous to arriving at which state the caterpillars must have made their way to the outside of the fruit, and spun the web (probably in common) which supports the fruit to the stem and prevents its falling, and then returned into the fruit. But a much more analogous instance of this socialism was described by me in the ninth volume of the "*Magazine of Natural History,*" in which a mass of the cocoons of the *Ilithya sociella* (between two and three hundred in number, if not indeed considerably more) was found in the hollow stump of an acacia-tree. The mass measured about 5 inches in length and $2\frac{1}{2}$ inches in diameter, the outer covering consisting of a thin layer of floss-silk. I have also seen a nearly similar compact congregation of the cocoons of the honey-moth, *Galleria cereana*, which feeds in the hive of the honey-bee.

The other insect described by Mr. Curtis was a Brazilian wasp, which forms a long truncated conical nest, similar to those figured by Reaumur, but having the outside of the nest coated with a fine earth or sand. Hitherto those wasps which construct their nests of sand have been found to be only solitary in their habits, not forming regular combs ; all the social species which build combs on the contrary being card-makers. Unfortunately Mr. Curtis had not cut his nest open, so that it is impossible to determine the condition of the interior. Such a difference of habits must, however, most probably involve a difference of structure in the man-

* Reaumur Mem., tom. ii. pl. xxxv. figs. 7 and 8 ; Mod. Class. of Ins. ii. p. 149, fig. lxxvi. 17.

dibles, maxillæ, and labium, of which, however, Mr. Curtis gave no account. He also added a summary of the genera of wasps, with which he was acquainted ; but all those described by St. Fargeau, in the "*Histoire Naturelle des Ins. Hym.*" were unnoticed.

WINGS OF INSECTS.—"The isolated study of the more important and typical organs of animated beings, though not to be recommended, if regarded only in an organographical point of view, is of no small importance when made the means of illustrating the general principles of natural history, or its more philosophical inquiries, which can be alluded to but briefly in articles on tribes, genera, and species. In this way a value may be given to the driest technicalities of the science, which, when philosophically understood, render the strictest descriptive diagnosis suggestive of important and interesting views. Such a subject is that of the wings of insects.

"The air is the appointed habitation of the insect tribes, and flight their chief means of motion. The mechanism by which it is effected is not, as in birds, dependent on the modification of certain of the extremities, but on a transformation of the machinery of that organism which has most relation with the air itself—the respiratory system. The wings are metamorphosed gills. The branchiæ of the Nereids are their prototypes. These again are processes of the integument. The tegumentary system is characteristic of articulate animals. Among their highest genera it becomes their skeleton—an exo-skeleton—which contrasts with the endo-skeleton of the vertebrata. The former is the skeleton of the respiratory system ; the latter of the nervous system. The former in its most perfect form appertains to creatures which present the highest development of intelligence ; whilst the latter perfects itself in motion and the accompanying instincts. According to the relation of their organization to one or the other of these points, animals are arranged in two parallel series, which in themselves are not simple, but again subdivided into similar and representative groups. The two great series themselves may be regarded as representing the two kingdoms of organised nature—the animal and vegetative spheres, as they have been designated ; in the former of which the forms of beings are mainly determined by the influence of their organs of sensation and intelligence ; in the latter, by those of respiration and reproduction. If such analogy be true, we should see evidences of its truth on a comparison of the characteristic

structure in analogous groups. Such evidence we perceive on comparing the characteristic organs of the members of the vegetable kingdom with those of the members of the vegetative (or articulate) sphere in the animal kingdom, of the leaf with the wing. There is no finer illustration of the relation of analogy in natural history, than that between the leaf of a plant and the wing of an insect. In both we have a double sheet of cells held together and strengthened by a frame-work of vessels, the structures of the respiratory system and the processes of the dermato-skeleton supplying the materials in each. Hence, Oken has well applied to the wings of insects the name of aërial gills."—*Penny Cyclopædia*.

MONOGRAPHIE DES E'ROTYLIENS, Famille de l'Ordre des Coléoptères. Par M. Th. LACORDAIRE. Paris, 1842. 8vo, pp. 543.

THIS is another of the excellent monographs with which the science of Entomology has lately been enriched by the labours of Continental entomologists. A monograph, illustrated with figures (of which, unfortunately, the present work is entirely deficient), upon this group, was published by M. Duponchel, in 1825, in which 92 species were described. M. Lacordaire, in his monograph, describes 570. In an Introduction of 32 pages, the author has given a general account of the characters, habits, affinities, &c., of the group; admitting that the tarsi are pentamerous, or rather pseudotetramerous, the fourth joint being "très-petit nodiforme chez la plupart" (by which character *Encaustes*, *Episcapha*, *Triplax*, and *Tritoma*, are united to the family); and describing the maxillary palpi as having the last joint "triangulaire, ou en segment de cercle, ou fortement transversal, rarement ovoïde et tronqué à son extrémité" (as in *Triplatoma*, *Dacne*). The inner maxillary lobe, in at least half the species, is simple; in a few, it is 1-spinose (*Encaustes*); and in others, bispinose; the teeth long and acute, as in *Erotylus* and *Aulacocheilus*, or very short and obtuse (*Ægithus*).

The variations which exist in the lower part of the mouth are very carefully described. The antennæ either consist of a compressed club, suddenly formed, of three joints, or of four joints, gradually dilated. The wings are described as agreeing throughout the group, the difference between those of *Encaustes*, *Triplatoma*, *Dacne*, and *Erotylus*, being insignificant. The *Chrysomelidæ* have

wings of a different type, so that the *Erotylidæ* cannot be associated with them. Of the habits and metamorphosis of these insects, but little is known. The larva of *Ægithus Surinamensis*, described by M. Lacordaire, and that of *Triplax russica*, figured by me,* being the only species hitherto noticed in their early states. The perfect insects reside in boleti, where they undergo their transformations; and, although sometimes found on the trunks of trees, they are never met with beneath the bark.

The geographical distribution of these insects is peculiar. Of the 570 species, only 65 are natives of the Old World; 505 inhabiting the New World. Can it be doubted, that the immense forests of South America, teeming, as they must do, with the vegetable productions which are the natural element of these insects, are the primary cause of this vast difference? Only three of these insects are, in fact, found in Asia; 28 inhabit Java; and only two have been received from New Holland (both belonging to the genus *Episcapha*). Sixteen species have occurred in Africa, and thirteen in Europe. The New World species are thus distributed:—Brazil, 150 species; Guiana, 130; Bolivia, 37; Cömbia, 128; Mexico, 34; the United States, 15; the Antilles, 7.

After detailing the reasons which have led the author to unite *Erotylus* with insects heretofore placed with *Engis*, he reviews the recent arrangements which have been proposed, especially in this country, for a breaking up of the Latreillian group of *Xylophaga*, and the proposal of the section *Rypophaga*; and concludes that the *Erotyliens* ought to be “*tout-à-fait séparées des Chrysoméliens avec qui elle n’a que des analogies très éloignées, et que sa place est dans la section des Rypophaga de MM. Stephens et Westwood*”† (probably next *Engis* or *Scaphidium*).

The family is divided into two tribes—First, the *Engidiformes*, consisting of 14 genera, including *Triplatoma*, *Dacne*, *Triplax*, *Triptoma*, &c.; and secondly, the *Genuini*, also consisting of 14 genera. All these, with their species, are then carefully described; and at the end of the volume is a “*Concordance Synonymique*,” in which each of the species described by the chief previous writers on the group is given, with the name and reference by which it is described in the present monograph. This is a very useful addition: it is

* *Introduct. to Mod. Class. of Insects*, t. 1, p. 393, fig. 49—6.

† In my *Modern Classification of Insects*, I suggested that “the *Erotylidæ* ought perhaps to be regarded as more strictly *Necrophagous*; in which case, the *Endomychidæ* would, I apprehend, be equally liable to removal” (Vol. i., p. 391).

not, however, entirely new, as the author suggests in the Preface ; having been adopted by Serville, in his volumes of the *Suites à Buffon*.

UPON THE ANATOMY OF PHALANGIUM OPILIO LATR. By ALFRED TULK, M.R.C.S., &c.
(From the "Annals of Natural History.") London, 1843. pp. 38. With 3 Plates.

THE attention bestowed by many of the more recent writers on Entomology, upon the hitherto neglected tribes of the Linnæan Aptera, is a circumstance of much interest, the different orders of that class having been at length acknowledged to afford the most valuable assistance in determining the natural classification of the Annulose Subkingdom. It is, therefore, with pleasure that I announce the memoir, of which the title is given at the head of this notice, in which Mr. Tulk has investigated the anatomy, both external and internal, of a very curious group of Arachnidous animals ; with which, notwithstanding the extreme abundance of some of the species, our knowledge hitherto has been very superficial. The genus *Phalangium*, indeed, in their tracheal mode of respiration, subarticulated bodies, and exposed didactyle chelicerae, constitute one of the primary types of the great class *Arachnida*, being in these respects intimately allied to the two other equally anomalous groups, *Chelifer* and *Solpuga* ; * neither of which have hitherto been satisfactorily investigated. Of the great care bestowed upon this memoir, I am able to speak from personal knowledge, although I am not sufficiently acquainted with the minute details of the internal anatomy of these tribes to offer an opinion on some of the results at which the author has arrived. I trust that he will not consider the subject as exhausted, especially as he has not given any account of the early states of these insects.

* These three types constitute the order which I have termed *Adelarthrosomata*.—Ent. Text Book, pp. 131, 145.



PLATE LXXII.

DESCRIPTIONS OF TWO NEW ASSAMESE SPECIES OF PAPILIO, RECEIVED
FROM MAJOR JENKINS.

THE two interesting additions to the genus *Papilio* represented in the annexed Plate, form part of a collection of insects with which I have been favoured by Major Jenkins, and to whom I beg leave to present the best thanks; both of my subscribers and myself, feeling convinced that they will consider that every addition made to our knowledge of the beautiful productions of our distant territories by the zeal of gentlemen resident in such districts, is a subject of congratulation.

PAPILIO CHAON, *Westw.* Plate 72, fig. 1 & 1*.

P. alis posticis caudatis; omnibus supra nigris posticis plaga magnâ irregulari 4-partita lactea, anticis subtus ad apicem fusciscentibus, posticis plaga 4-partita alba (ut in pagina supra) maculisque tribus minoribus ad marginem analem extensis, lunulisque submarginalibus luteis incisurisque albis.

Expans. alar. antic. circ. unc. 5. Habitat in Assam. D. Jenkins. In Mus. nostr.

This species is very nearly allied to *P. Helenus**, but differs not only in the form of the pale patch on the disc of the hind wings, but also in the markings of the underside of the same wings. The upper surface of the wings is entirely black, a slightly brown appearance being produced by a few luteous scales arranged in rows in the discoidal cell, and beyond the middle of the fore wings. The hind ones have a large cream-white patch on the disc towards the outer angle, formed of four confluent spots (the outer one generally hidden by the hind margin of the fore wings); the one nearest the body being oval, the next oblong with the extremity obliquely emarginate, as it is also in the third spot, which is much smaller than the second, and the fourth is still smaller. The fore wings on the under side have a brown appearance, produced by a greater quantity of the luteous scales; the incisures are slightly marked with white; the hind wings on this side are similarly marked with four white spots as above, but in addition to these, there extend three pale luteous lunules towards the anal margin; and there is also a narrow row of the same coloured lunules parallel with the white incisions, which are here more distinct than above.

* It is accordingly named after his unfortunate brother, Chaon.

PAPILIO MEGARUS, *Westw.* Plate 72, fig. 2.

P. alis rotundatis, posticis ecaudatis, fusco-nigris; albido-strigatis et maculatis lunulisque submarginalibus in alis posticis, alis subtus griseo-fuscis, eodem modo strigatis et maculatis.
 Expans. alar. antic. unc. $3\frac{1}{4}$. Habitat in Assam. D. Jenkins. In Mus. nostr.

This insect has so little the appearance of a true *Papilio*, as to cause it to be easily mistaken for one of the *Danaides*. The arrangement of the wing-veins, however, proves that this is only a relation of analogy, of which several other species also furnish us with examples; especially the *Papilio paradoxus*, which is a true species of this genus. The present species is most nearly allied to *P. Macareus*, of the *Encyclop. Méthod.* (*P. striatus*. Z. Somm.) The upper surface of the wings is blackish-brown, the basal portions of the wings striated, and the apical portion maculated with whitish marks, the latter forming two rows parallel with the apical margin of the fore wings and the hind wings with a submarginal row of lunules, and without pale incisions; the hind wings are much more maculated beyond the middle than in *P. Macareus*. The under side is similar to the upper in markings, except that the marks in the discoidal cell of the fore wings are much fainter, and the ground colour of all the wings is a golden greyish brown.

The beautiful plant represented in the Plate is the Orchidaceous *Arundina densa* of Lindley, from Singapore.

THE FIRST BUTTERFLY.

One of the superstitions prevailing in Devonshire is, that any individual neglecting to kill the first butterfly he may see for the season, will have ill-luck throughout the year. The following recent example is given by a young lady :—"The other Sunday, as we were walking to church, we met a man running at full speed, with his hat in one hand, and a stick in the other. As he passed us, he exclaimed, 'I sha'n't hat 'em now, I b'lieve.' He did not give us time to inquire what he was so eagerly pursuing; but we presently overtook an old man, whom we knew to be his father, and who being very infirm, at upwards of seventy, generally hobbled about by the aid of two sticks. Addressing me, he observed, 'My *zin* a took away wan a' my sticks, miss, wan't be ebblo to kill 'n now though, I believe.' 'Kill what?' said I. 'Why, 'tis a butterfly, miss, the *furst* hee'th a zeed for the year; and they zay that a body will have cruel bad luck if a ditn' 'en kill a *furst* a zeeoth.'"—*Dorset Chronicle*.



PLATE LXXIII.

ON TWO SPECIES OF INCA FROM TROPICAL AMERICA.

THE Goliathideous Cetoniidæ being (with a single anomalous exception) natives of Africa and India, we may, perhaps, be justified in regarding the species of Inca which are natives of tropical America * as their natural geographical representatives, although they do not belong to the same portion of the family. In respect to their maxillæ, indeed, they form a decided group, having an elongated, cylindrical, toothless galea and simple mando; thus differing from the Trichiides, which have an obtuse coriaceous galea, and from the Euchiridæ of Burmeister, which have a dentated galea. This author has very carefully illustrated the structure of the trophi in Germar's excellent 'Zeitschrift für die Entomologie' (ii. tab. 2, f. 5—8, 18).

INCA SOMMERI, *Westw.*

Plate 73, fig. 1 ♂, 3 ♀.

I. chalybæo-niger, supra opacus, pronoto albido vittato et limbato, elytris obscure rufis, albido irroratis; cornubus capitis ♂ oblique porrecto, apicibus latis oblique truncatis.

Habitat in Mexico—Villa alta prope Oaxaca.

An varietas geographica *I. Weberi*?

Long. corp. ♂ (cornub. capitis inclus.); unc. 2; ♀ unc. 1½. In Mus. D. Sommer.

The two insects represented in Nos. 1 and 3 have been very obligingly forwarded to me by M. C. Sommer, Esq., of Altona (the father-in-law of Professor Burmeister), with the view of their being figured in this work, if considered distinct from the *Cetonia Inca* of Weber (*Inca Weberi* Encycl. Méth., and Burm., *I. Fabricii* Perty.) The principal difference between the male of the last-named insect and that sent by Mr. Sommer, consists in the form of the horns of the head; and as I have found a second specimen, agreeing with Mr. Sommer's, in the British Museum Collection (arranged with *I. Weberi*), I have thought it most advisable to give it as distinct from that species, especially as its geographical station is widely different from that of *I. Weberi*, and as the distinctions between the other species of the genus is but slight.

The head and thorax of the male, on the upper side, are obscure blue-black. The former has two prismatical horns,

* The curious occurrence of a species of this group in Africa must not be overlooked. See-Arc. Ent. 1, pl. 46, f. 6.

obliquely truncate at the tip, the upper ridge running off to the fore angle. (Fig. 1 b represents the head of the male, seen from beneath; 1 b the same seen sideways; 1 c one of the horns, seen within, to show the thick brush of fulvous hairs.*) The antennæ, except the basal joint, are dark fulvous; the prothorax is similar to *I. Weberi*. The elytra of the male are very dark purplish-brown, with the scutellum and suture greenish, and they are slightly irrorated, especially towards the suture, with luteous scales. The underside of the body is shining æneous, with short fulvous pile upon the hind edge of the thighs, and down the middle of the abdomen. The middle tibiæ are curved, and slightly bidentate in the middle, and the hind tibiæ have a single tooth near the middle. The female is darker-coloured than the male, and has the clypeus slightly concave; or rather, the lateral and front edges are elevated: the elytra are much more thickly irrorated with luteous scales. The middle tibiæ are straight and bidentate in the middle, and the hind tibiæ have a single tooth in the middle.† The teeth in the anterior tibiæ are not so acute as in the female of *I. Weberi*.

Note. Perty's figure represents the male of *I. Weberi* with the horns of the head emarginate at the tip. The figure of the male in Gory and Perchéron's *Mon. Cét.*, pl. 13, f. 1, is unlike any specimen I have yet seen in the form of the horns.

INCA BESKII. Plate 73, fig. 4 ♂, 5 ♀.

"*I. fusco-niger, subtus ænescens fulvo-hirtus supra fulvo guttatus; elytris atro-purpureis; fascia media obsoleta notatis.*"

SYN. *I. Beskii*, Dejean; Burmeister.

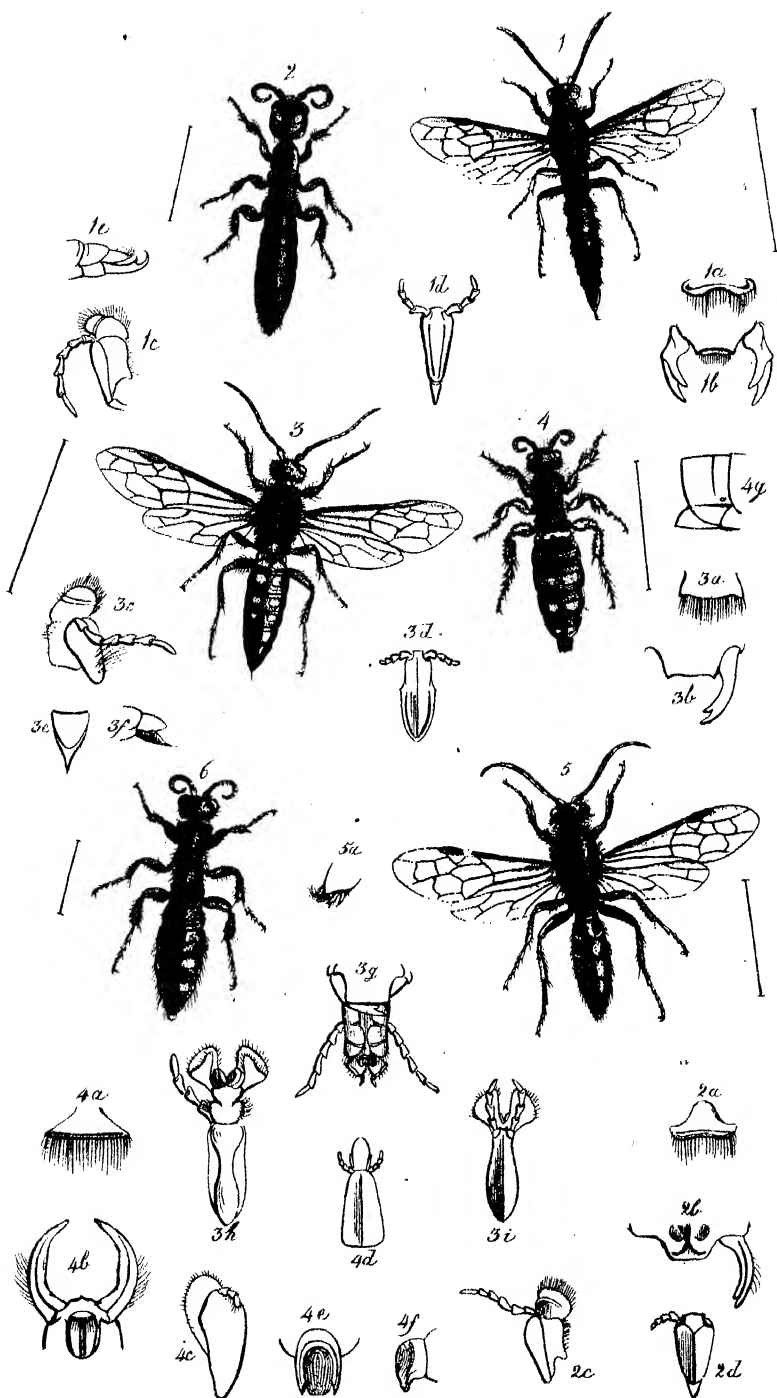
Habitat "Novo Friburgo;" *Brasilie inter.* In Mus. D. Sommer, &c.

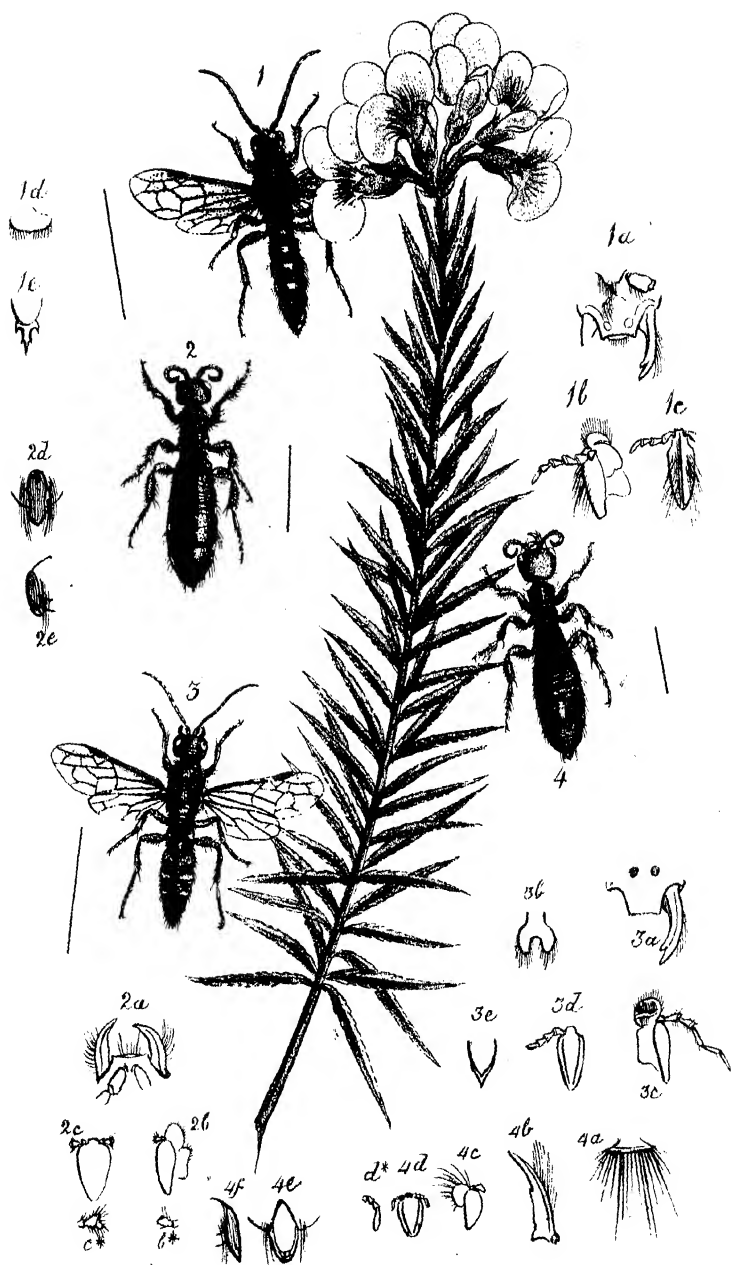
No figure of this species having hitherto been published, I am happy to be able to give a representation of both the sexes, by the kindness of Mr. Sommer. There is a specimen, agreeing with the male in the British Museum Collection, with the MS. name *biguttata* attached to it.

The plant represented in the Plate is the splendid Orchidaceous *Maxillaria cruenta* of Lindley, from Guatemala.

* Fig. 2 a represents the head of the male of *I. Weberi*, seen from beneath; 2 b one of the horns of the head, seen from above; 2 c the head, seen from the side; and 2 d one of the horns seen within.

† The hind tibiæ in the female (in the British Museum Collection) have two acute teeth in the middle.





PLATES LXXIV AND LXXV.

ILLUSTRATIONS OF SOME SPECIES OF AUSTRALIAN THYNNIDEOUS INSECTS.

THE recent monographs of Dr. Klug and M. Guérin-Meneville upon the Genus *Thynnus* of Fabricius, and the different results at which these distinguished Hymenopterologists have arrived respecting the generic arrangement of these insects, render the observation of every fact, tending to determine the question at issue, absolutely necessary; and no one circumstance has hitherto been shown to be more important than the exact discrimination of the sexes of the different species, since by this means not only are we prevented from forming separate genera for the reception of the two sexes of the same species, but we are thereby enabled to trace the value of the modifications of structure which may have been already, or which ought hereafter to be adopted as the characteristics of the several groups into which these insects have been or are divided.

As a group, these insects possess an interesting geographical distribution, being only found in Australasia and South America. The species from the latter country are rare in our English cabinets, whilst Dr. Klug describes not fewer than 40 species; whereas our cabinets are very rich in the New Holland species, which are equally rare in the continental collections.

By the kindness of several friends I am enabled to give representations of both the sexes of five Australian species.

In order, however, to enable such of my subscribers as do not possess the "*Voyage de la Coquille*," (in the Zoological portion of which M. Guérin published his chief memoir on these insects) to enter more effectually upon the consideration of the question of the generic distribution of these insects, I here copy from that work such portion of the tabular synopsis of the genera of the Hymenoptera *Heterogyna*, as relates to the insects in question.

1. Abdomen des mâles cylindrique, terminé inférieurement par une grande épine recourbée en haut. (Genera *Methoca*, *Myzine* et) *Rhagigaster*, Guér.
2. Abdomen des mâles aplati, n'ayant point à l'extrémité d'épine recourbée vers le haut.

a Mandibules tridentées.

* Les deux nervures récurrentes aboutissant aux 2^{me} et 3^{me} cellules cubitales.
G. *Telephoromyia*, Guér.

** Les deux nervures récurrentes aboutissant à la seconde cellule cubitale. G. *Tachypterus*, Guér.

♂ Mandibules bidentées, chapéron très-avancé entre les mandibules.

* Labre découvert et saillant.

† Labre bilobé *G. Agriomyia*, Guér.

†† Labre arrondi.

o Machoires non ciliées à leur base. *G. Thynnus*, F.

oo Machoires très-ciliées à leur base. *G. Thynnoides*, Guér.

** Labre recouvert par le chapéron.

† Premier cellule cubitale sans appendice. *G. Anthobosca*, Guér.

†† Premier cellule cubitale ayant un appendice. *G. Elaphroptera*, Guér.*

Rhagigaster, Guér., composed of a single species from Port Jackson. *Rh. unicolor*.

Telephoromyia, Guér., composed of a Patagonian species.

Tachypterus, Guér., consists of a single species, *T. fasciatus*, from Kangaroo Island, on the coast of New Holland. The genus is evidently identical with *Psanatha* (See *ante*, p. 20), which name must accordingly sink into a synonyme. *Tachypterus chalybeus* (*ante*, pl. 54, fig. 5), forms a second species in the genus.

Agriomyia, Guér., consists of a single species, *A. maculata*, from New Holland.

Thynnus, Fabricius. M. Guérin describes or notices 18 species of this Australian group.

1. *T. dentatus*, Fab.
2. *T. zonatus*, Guér., n. sp.
3. *T. variabilis*, Kirby.
4. *T. affinis*, Guér. n. sp.
5. *T. obscuripennis*, Guér. n. sp.
6. *T. rufiventris*, Guér. n. sp.
7. *T. annulatus*, K.
8. *T. Australis*, Bdv. Voy. Astrol.
9. *T. flaviventris*, Guér. n. sp.
10. *T. emarginatus*, Fab.
11. *T. abdominalis*, Fab. †
12. *T. integer*, Fab. ‡
13. *Scolia 7-cincta*, Fab. ??
14. *Tiphia radula*, Fab. ??
15. *Myrmecodes flavo-guttatus*, Latr. (♀ of *T. variabilis*?)
16. *T. apterus*. ♀ Enc. Méth.
17. *T. pedestris*, Fab. ?
18. *T. Grayii*, Guér., (*Myrmecodes australis*, Leach, Gray, Griff. An. K.)

Thynnoides, Guér.—Three new species, *T. fulvipes*, Guér.; *T. rubripes*, Guér.; and *T. pugionatus*, all from Australasia.

Diamma, Westw., (see *ante*, pl. 54, fig. 6.) In addition to *D. bicolor*, the true type of the genus, M. Guérin describes a second species, *D. ephippiger*, from Kangaroo Island, but it is not congeneric with the former, being in fact a female of the genus *Rhagigaster*. He also suggests that *B. apterus*, Fab., also belongs to the genus.

Anthobosca, Guér.—A single species from Port Jackson. (*Myzene Australasiae*, Guér. Atlas, pl. 8, fig. 10.)

Anodontyra, Westw.—A single species from Chili.

Ornepetes Guér.—Also a single species from Chili.

Elaphroptera, Guér.—Composed of South American species.

Ammodromus, Guér.—Composed of the female of South American species.

In the "Magasin de Zoologie" for 1842, M. Guérin has made numerous additions to our knowledge, both of the species and structural characters of these insects, adding the following new species:—

Rhagigaster hæmorrhoidalis (Swan River.)

Agriomyia marginilabris, *affinis*, *Westwoodii*, *abdominalis*, and *Spinolæ*, all from Australasia.

* "Nous n'avons pas fait entrer dans ce tableau les deux genres provisoires, *Diamma* et *Ammodromus*; ils se composent de femelles qui entrèrent probablement dans les genres déjà connus, quand on les aura mieux observées, et qu'on aura surpris leur accouplement."

† This species belongs to the family of the bees, and is allied to *Crocisa*.

‡ The cylindric abdomen with a recurved apical spine, unites this species with the genus *Rhagigaster* of Guér.

Thynnus Shuckardi, and flavilabris, from New Holland.

Thynnoides nigripes, from Swan River.

He likewise adds the descriptions of two new Australian genera.

Catocheilus, Guér., allied to *Thynnus* and *Agriomyia*, but having a membranaceous concealed labrum, and the terminal joint of the maxillary palpi very minute, and the maxillæ much ciliated within. *C. Klugii*, Guér., ♂ ♀. (Swan River.)

Lophocheilus, Guér.—Allied to *Thynnoides*, but having the labrum truncated and villose in front, slightly prominent and emarginate, the maxillæ slightly hairy, short; lower lip short, with the paraglossæ folded back. 3 Species: *L. villosus*, *L. distinctus*, and *L. ? collaris*,—all from New Holland.

Such, with the addition of the genera—

Psamatha Shuckard, mentioned above,

Oncorhinus, Shk., in Gray's Australia Append., Vol. ii., founded upon a fine species from Swan River, and

Amblysoma, Westw. in Guér. Mag. de Zool., founded upon a Brazilian species, and the figure of *Anodotyra tricolor*, W. published in the same work, constitute the whole of the generic groups hitherto proposed in the sub-family.

Dr. Klug, rejecting all these generic names, in his Monograph on the genus, recently published in the "Transactions of the Berlin Academy," and uniting the whole under the generic name of *Thynnus*, has divided the Australian species into three sections,

A. *Th. dentatus*, &c.

B. (*Agriomyia*, Guér.)

C. (*Rhagigaster*, *Thynnoides*, and *Anthobosca*, Guér.);

describing two new Australian species of the section B. (*T. variegatus* and *pulchellus*), and also two new species of the section C. (*T. obscurus*, and *labiatus*, Kl.)

At present it is premature to decide upon the propriety of the rejecting of all these generic groups, although I cannot but think that some of them rest upon characters which will be found to be of too trivial an importance, especially when the general and greatly variable habit of the species is considered; the apparent differences in the formations of the divisions of the lower lip is certainly not to be depended upon in our dried specimens, since in some individuals of a species they are retracted, in others porrected.*

The dissections which I now, however, offer to the student, in connection with those in the 54th plate, enables us to estimate the value of one of M. Guérin's genera, namely RHAGIGASTER, whilst at the same time it will serve to show that the females of the Myzine, when discovered, will almost certainly be apterous; the

* Compare pl. 74, fig. 3d. 3g. 3h. 3i.

female of *Rhagigaster* differing from those of all the four other species now represented by possessing ordinary-shaped 6-jointed maxillary palpi, like *Diamma* and *Methoca*; from the first of which it is at once distinguished by its depressed (not compressed) form, and by its nearly simple (not multidentate) mandibles. Notwithstanding these very evident distinctions, M. Guérin has described a female of *Rhagigaster* as a second species of *Diamma*, as above noticed, and has further increased the confusion by asserting that *D. bicolor* is the female of *Rhagigaster*; whereas, there is great reason for considering that it is the female of *Tachypterus* (*Psamatha*, Shk.), which has the mandibles more toothed than in the majority of the family, although the female possesses one more tooth than the male, which is not the case in the other species, of which the sexes have been determined: indeed the contrary occurs in the majority.

The discovery of the female of *Myzine* will moreover determine whether the small rudimental vein inclosed within the first submarginal cell of *Rhagigaster* (which is the only character by which it is distinguished from *Myzine* ♂), does not indicate a much more marked difference in the opposite sex than might at first be supposed to be the case, or whether it is sufficient to bind it, as it now does, to the other Thynnideous insects.

The following are the characters of the genus *Rhagigaster*, as modified and extended by the examination of several species, and by the discovery of the female sex, together also with a synopsis of the species which belong to it.

RHAGIGASTER, GUÉRIN.

♂ Abdomen elongatum apice spina recurva armatum, segmento primo subtus tuberculo conico instructo; segmentis 2ndo et reliquis ad * basin constrictione subarticuliformi instructis.

Frons inter partem superiorem oculorum subcarinatus.

Mandibulæ intus versus apicem dente armatæ.

Alæ anticæ cellulis 4 submarginalibus, prima appendiculata.

Palpi omnes formæ ordinariæ.

Clypeus anticæ fere recte truncatus.

Labrum margine antico vix emarginato clypeo fere abscondito.

♀ Caput magnū subquadratum planum impressione longitudinali utrinque pone oculos.

Mandibulæ et palpi mari conformes. Thorax 3-annulatus, apterus.

Abdomen elongatum depressum segmentis ad basin linea tenui transversa impressis.

* M. Guérin erroneously describes the abdominal segments as having '*en arrière, ainsi que le premier une impression transverse.*' The lateral examination of the abdomen at once shows that the first segment is not constricted, and that it is the base and not the extremity of the other segments which is thus circumstanced.

SPECIES I.—*Rhagigaster unicolor*, Guérin. Voy. Coq. Ins. p. 214.

Niger punctatus pilis albidis indutus, alis anticis hyalinis apice subinfuscatis; mandibulis simplicibus apicem versus 1-dentatis, abdominis apice utrinque dente parvo alteroque medio recurvo armato. Long. corp. 19 mill. Expans. alar. 30 mill. Habitat, Port Jackson, Terra Van Diem. Mus. nostr. communic. D. Jos. Hooker.

SPECIES II.—*Rhagigaster ephippiger*.

SYN.—*Diamma ephippiger*, Guérin. Voy. de l'Astrolabe, p. 235. Mag. Zool., 1842, pl. 103, fig. 1—6.

♀ Niger nitidus antennis, mandibularum apicibus, mesothoraco metathorace et pedibus rufis anoque fulvo.

Long. corp. 13 mill.

Habitat. "Kangaroo" insul. In Mus. Reg. Paris.

Obs.—Hæc est ♀. *Rh. unicoloris*, teste D. Shuckard.

SPECIES III.—*Rhagigaster mandibularis*, Westw. (Plate 74, fig. 1, ♂, fig. 2, ♀.)

♂ Niger punctatus pilis griseis parum indutus, alis anticis hyalinis fusco tinctis, mandibulis supra in medio tuberculo conico armatis, abdominis apice spina unica recurva armato. Long. corp. lin. $8\frac{1}{2}$. Expans. alar. lin. $12\frac{1}{2}$.

Obs.—Carina frontalis fere indistincta. Spatium constrictum ad basin segmentorum abdominalium subtilissimo punctatissimum.

♀ Niger nitidus, capite maculis duabus frontalibus fulvis, mesothorace metathorace coxisque omnibus ferrugineis, pedibus antennisque nigris. Long. corp. lin. $5\frac{1}{2}$.

Habitat, Port Philip. In Mus. Saunders et Nostr.

SPECIES IV.—*Rhagigaster Morio*, Westw. Niger nitidus, punctatus; capite tuberculo transverso supra basin antennarum valde, alteroque supero minus prominenti, mandibulis simplicibus intus apicem versus dento armatis, metathorace supra transverso carinato angulis posticis quadratis, abdominis apice spina unica armato; pedibus rufis, alis nigricantibus. ♂.

Long. corp. lin. $9\frac{1}{2}$. Expans. alar. lin. 14.

Habitat, in Australasia. In Mus. Brit. et Nostr.

SPECIES V.—*Rhagigaster hæmorrhoidalis*, Guérin. Mag. de Zool. 1842, p. 2.* Niger rugosus, griseo pilosus, segmentis duobus apicalibus abdominis fulvis spina anali recurva nigra ♂.

Long. corp. 15 mill.

Habitat, Swan River. In Mus. Guérin.

SPECIES VI.—*Rhagigaster integer*.

SYN.—*Thynnus integer*, Fabricius. Ent. Syst. 2, 245, Kirby, Mon. Ap. Ang. 1, p. 223. Donovan. Ins. N. Holl.

Ater, abdominis segmentis margine villosa cinereis, capitis fronte cinereo pubescente scutello truncato obtuso, ano integro aculeo brevi recurvo. ♂.

Habitat. in Nov. Holl. In Mus. Banks. (Soc. Linn. Lond.)

SPECIES VII.—*Rhagigaster binotatus*, Westw.

♀ Niger nitidus, parum punctatus, capite maculis duabus frontalibus fulvis pone insertionem antennarum.

Long. corp. lin. $5\frac{1}{2}$.

Habitat in Terra Van Diemenii. In Mus. Nostr. communic. D. Hooker. Statura *Rh. mandibularis*, ♀, cui valde affinis coloribus tamen distincta.

* I possess two specimens agreeing with Guérin's description as to colour, but only measuring 5 lines long (instead of 15 mill.), and having no tooth in the basal segment to the abdomen beneath, no carina between the upper part of the eyes, but having five teeth at the extremity of the abdomen, the middle one not being recurved at all. I therefore do not consider this insect (which I name *Thynnus decipiens*), as belonging to the genus *Rhagigaster*.

SPECIES VIII.—*Rhagigaster analis*, Westw.

♀ *Niger nitidus*, parum punctatus mandibulis antennisque piccis pedibus segmento apicali abdominis fulvis; capite pone insertionem antennarum linea transversa in medio interrupta fulva.

Long. corp. lin. $4\frac{1}{2}$.

Habitat, apud "King George's Sound." In Mus. Nostr.

Obs.—Mandibulæ dente interno latiori at magis oblique-truncato nec acuto. Caput minus quadratum, abdomen ad basin paullo angustius longius, segmento ultimo oblongo-ovato.

SPECIES ? IX.—*Bethylus apterus*, Fabricius. Syst. Piez., 238.

♀ *B. apterus niger* pedibus rufis abdomine piloso nigro segmentorum marginibus ferrugineis nitidulis.

Habitat in Nova Cambria. D. Billardiére.

Obs.—My notes made upon the Fabrician collection at Kiel, in which the typical specimen is preserved, state that this insect is a Myrmecodes. Its colours seem to indicate it as a female of this group.

SPECIES ? X.—*Myzine ruficornis*, Guérin. Prodrôme d'une Monogr. des Myzines, p. 11, (Ext. Dict. Pittoresq. d'Hist. Nat. t. v.)

♂ "Tête noire avec le chaperon et les antennes fauves, thorax noir, ponctué avec le prothorax, trois taches sur le mésothorax et deux grandes taches de chaque côté orangées. Ailes incolores, pattes orangées, abdomen orangé, avec la base des segments noirs."

Long. 12 mill.

Habitat, in Arabia!

Obs.—Cellula 1ma. submarginalis appendiculata.

TITHYNNUS HYALINATUS, Westw.

(Plate 74, fig. 3 ♂; fig. 4 ♀.)

♂ *T. capite* thoraceque fusco-æneis fulvo dense tomentosis metathorace flavo-vario, abdomine nigro nitido segmentis quatuor prioribus flavo-maculatis, alis fere hyalinis, pedibus testaceis.

Long. corp. lin. $9\frac{1}{2}$. Expans. alar. lin. $18\frac{1}{2}$.

♀ Ferruginea albido-pilosa, abdomine magis picco, segmento 1mo fascia integra flava, reliquis interrupte flavo-fasciatis.

Long. corp. lin. 8.

Habitat in Terra Van Diemenii, D. Lewis. In Mus. nostro, D. Lewisio amicissime communicatus.

This species is very nearly allied to *T. variabilis*, but it is at once distinguished from that species by its uniform smaller size, the almost uniform colour of the thorax, and the nearly hyaline wings of the male. The head in this sex is æneous black, closely and finely punctured, and clothed with short close fulvous pubescence; the clypeus is yellow, which colour is extended along the anterior and posterior margin of the eyes, higher than the insertion of the antennæ; it forms also a slender branch behind the eyes. The mandibles are fulvous with black tips, the antennæ black and slender. The thorax is slightly æneous black, finely punctured, and tomentose like the head, with a slender transverse yellow line behind the scutellum and the metathorax, with a large patch above

and one on each side. The abdomen is black and shining, the first segment with a large irregular yellow spot nearly divided in two by a black clavate line; each of the three following segments has two round yellow spots on the back and an oblong one on each side, as have also the fifth and sixth segments; but in them they much diminish in size; the five anterior segments on the under side are varied with yellow spots, which become gradually smaller beyond the 2nd joint. The legs are castaneous red, the coxæ alone black, the posterior coxæ with a yellow spot in front. The anal appendage terminates in an acute point, without any lateral spines.

The female is dark chesnut red on the head and thorax, which are slightly and widely punctured and pilose, the punctures being larger and closer near the insertion of the antennæ. The clypeus is irregular with a central point (fig. 4 *b*), the mandibles are pitchy and entire, the antennæ pitchy, the legs chesnut red, the abdomen pitchy red, with five yellow fasciæ interrupted down the middle and at each side; the intermediate segments on each side beneath have a small yellow spot. The first segment has a slight transverse carinated line near the extremity, the second segment with one near the base and another near the extremity, the intermediate space transversely multi-striolated; each of the following segments has a transverse carinated line nearly across the middle. The terminal segment of the abdomen is thick, truncate, with longitudinal striæ, and a notch on each side beneath (fig. 4 *e*, 4 *f*.)

Figure 3 *a*, labrum ♂; 3 *b*, clypeus and mandible; 3 *c*, maxilla; 3 *d*, labium; 3 *e* and 3 *f*, extremity of the abdomen. 3 *g*, mouth of another specimen with the trophi porrected; 3 *h*, the labium as seen within the mouth; 3 *i*, the same seen beneath.

Fig. 4 *a*, the labrum of the female; 4 *b*, the front of the head, with the trophi and mandibles seen from beneath; 4 *c*, the maxillæ; 4 *d*, labium; 4 *e*, 4 *f*, terminal segment of abdomen; 4 *g*, middle segment of the abdomen, seen laterally, to show the position of the spiracle.

THYNNUS (AGRIOMYIA) DEPRESSUS. *Westw.*

(Plate 74. fig. 5 ♂, fig. 6 ♀.)

♂ *T. niger nitidus punctatus griseo pilosus abdomine depresso oblongo-ovato, segmentis 2, 3, et 4to utrinque lunula tenui albida, pedibus anticis rufis, posticis 4 picco-rufis femoribus nigricantibus.*

Long. corp. lin. 7. Expans. alar. lin. 12.

♀ Capite thorace et basi segmenti 1mi abdominis punctatissimis nigris; abdomine nitido, punctato hujus segmento 2do et dimidio basali 3tii rufis. Antennis picco-rufis, basi nigris pedibusque rufis.

Long. corp. lin. 4½.

Habitat, King George's Sound. In Mus. Brit.

The male is black, with gray hairs; head and thorax punctured

and immaculate; antennæ, black and slender; the abdomen is glossy black, depressed, and slightly punctured, with gray pubescence; the second, third, and fourth segments have on each side a small, slender, whitish lunule, diminishing in size. The second and third segments have also a whitish lunule on each side beneath, and the fourth and fifth a whitish dot. The abdomen is entire at its extremity, not pointed, but on each side, near the tip, is a small pointed, and another clavate setose exerted appendage, with a thin pencil of recurved hairs (fig. 5 *a*). The fore legs are red, and the four hind ones pitchy-red; the middle femora with a black streak behind, and the hind femora black. The fore wings are yellowish-smoky, with black veins; and the hind wings hyaline.

The female has the head, thorax, and base of the first segment of the abdomen black, and very much punctured; the abdomen is shining and setose at the sides; the extremity of the first segment, the whole of the second, the basal half of the third, and the extreme base of the fourth segments, as well as the apical appendage, are red; the remainder of the abdomen is black. The second segment has a carinated transverse line at a short distance from the hinder margin, the preceding portion being rudely punctured, and beyond it the segment is glossy and impunctate. The basal half of the third, fourth, and fifth segments are also glossy and impunctate, and the apical portion of these segments punctured. The antennæ are pitchy-red, with the basal joint black; and the legs are red.

THIYNNUS (THYNNOIDES) FUMIPENNIS, *Westw.*

(Plate 75, fig. 1. ♂ 2. ♀)

♂ *T. subæneo niger luteo-setosus et sublenito tenuissime punctatus clypeo fulvo, macula mediana alterisque duabus lateralibus obscuris; alis fumosis, pedibus obscure picco-rufis.*

Long. corp. lin. 8. Expans. alar. lin. 14.

♀ *nigra subnitida capite pedibusque fulvis.* Long. corp. lin. 5.

Habitat, Port Philip. In Mus. Saunders et nostr.

The male of this species is very closely allied to *T. obscurus*, Klug, and *T. rufipes*, Guer. (from both of which it differs in its smaller size), and also to *T. rubripes*, from which it differs in the yellow markings of the clypeus, the colour of the wings and legs, and the pilosity of the abdomen, and from *Th. labiatus*, Klug, it differs in the colour of its wings and legs. It is black, with an æneous tinge, which seems rather produced by the very short close luteous pubescence; and under a lens it is thickly and finely punctured;

the head is black, with the clypeus convex, its extremity emarginate-truncate, yellow, which colour does not quite extend upwards to the insertion of the antennæ; it also forms a short branch on each side, which does not, however, quite reach the eyes. Down the middle runs a dark mark, which is dilated in the middle into an oval ring, and on each side is a dark spot. The mandibles are yellow, with the tips black; the antennæ and thorax are black and without spots, as is also the abdomen; the latter has also the intermediate segments constricted across near the base and apex, and margined with slender luteous hairs; it terminates in a flattened point, which is slightly emarginate on each side near the extremity, and accompanied on each side near the base by a short spur. The wings are smoky yellowish, and the legs pitchy red. The female is black, with the exception of the head, antennæ, and legs, which are fulvous red. The abdomen is very large and gibbose; the first segment has a transverse carinated line near its extremity, the second segment has a carinated line across near the base, and another near the extremity, the intervening space with about three elevated finer carinated lines; the third segment has a transverse impressed line, at a short distance from the base, the intervening space being excessively minutely and closely punctured, and with another impressed line, which runs close to the apical margin in the middle, but at the sides obliquely extends into the disc of the segment. The fourth segment has a similar line near the apex, but none at the base.

Fig. 1 *a*, represents the clypeus and mandibles of the male; 1 *b*, the maxilla; 1 *c*, the labium; 1 *d*, the labrum; 1 *e*, the extremity of the body.

Fig. 2, the front of the head of the female; 2 *b*, the maxilla, with the very minute palpus *b* * 2 *c*, the labium, with the very minute labial palpus *c* *; 2 *d* and 2 *e*, the *deflexed entire striolated* extremity of the body.

THYNNUS (AGRIOMYIA) ODYNEROIDES, *Westw.*

(Plate 75, fig. 3, ♂ fig. 4. ♀)

♂ *Niger flavo-varius pronoto carina antica flava metathorace immaculato; pedibus fulvofusis, alis limpidis stigmato rufo.* Long corp. lin. 7. Expans. alar. lin. 12.

♀ *fulvo-rufescens thorace, abdominis basi fasciæque lata mediana nigris.* Long. corp. lin. 4.

This species is closely allied to *Agriomyia maculata*. Guér., but differs in several respects. The head and thorax are black, and very closely and finely punctured; the clypeus is narrowly produced and truncated; it is yellow, with a black transverse mark, and

terminates above (beneath the insertion of the antennæ) in three red points; in the middle, near the front margin, is a deep impressed dot; the mandibles are black, with the outsides yellow; the two tubercles on which the antennæ are placed are red on the inside; the head has a small yellow dot behind, in the middle. The collar has a yellow elevated carina in front, and a small yellow dot at each lateral angle, behind; the metathorax has a large yellow spot in the middle, a smaller one on the scutellum, a short yellow line behind the latter, and a yellow dot on each side, above the insertion of the hind wings; the tegulæ are also yellow; there is also a yellow spot on each side, beneath each wing; the abdomen is black, the first segment above with two minute yellow dots, the four following with a yellow, elongated, transverse patch on each side, having a notch in front, near the side, and having the inner extremity produced into a reflexed, yellow tooth; the basal segment of the abdomen beneath is produced into a very prominent, yellow, conical point; the three following segments bear a large transverse yellow spot (inclosing a black mark), and the fifth segment two minute oblique yellow dots. The legs are fulvous red, and the wings hyaline, slightly tinged with yellowish, with a chesnut-coloured stigma; the abdomen is terminated by an oval, flattened plate, with the tip acute.

The female has the head fulvous red, considerably dilated in front, impunctate, with dark fulvous antennæ and mandibles, the latter black at the tips; the thorax is black and punctured, the anterior division longitudinally channelled; the abdomen is fulvous red, with the base and middle black. The second segment has three strongly carinated lines across the middle; the third and fourth have respectively an impressed line across, near the base, and another (bi-emarginate) towards the apex. The legs are fulvous, very much ciliated, and the coxæ are darker coloured.

Fig. 3 *a* represents the front of the head of the male; 3 *b*, the *bilobed* labrum; 3 *c*, the maxilla; 3 *d*, the labium; and 3 *e*, the extremity of the abdomen of the male.

Fig. 4 *a*, the very deeply ciliated labrum of the female; 4 *b*, the mandible; 4 *c*, the maxilla, with its very minute palpus; 4 *d*, the labium, with its palpus *d* *.

The plant represented in Plate 75 is the Australian *Dillwynia ericifolia*.

ENTOMOLOGICAL INTELLIGENCE, NOTICES OF NEW BOOKS, &c.

(No. XIX.)

MONOGRAPHIA GENERIS RHAPHIDIAE, Linnæi. Dissertatio Entomologica. Auct. G. Th. SCHNEIDER. Vratislav, 1843, 4to, 99 pages, 7 plates, coloured and plain.

THIS is one of the most elaborate monographs which has hitherto been published upon a single genus of small extent, containing only seven species; the author having given in great detail the bibliographical history and minute external anatomy and natural history of the species in all their stages, as well as very long descriptions of each of the species. In the first of these particulars he has carefully noticed all the works which have appeared upon this genus up to the present time. In the second respect, he has made great use of the arrangement and modification of the veins of the wings, and has elucidated several questions not previously determined with precision—such as the existence of the six or seven eyelets on each side of the head of the larvæ; the five-jointed tarsi of the imago; the curious mode in which the head of the pupa is detached from the skin of the larva. He has, however, omitted to trace the precise structure of the divisions of the lower lip of the imago; neither in his magnified figures of the maxillæ are the parts of which they are composed attempted to be traced. The peculiarity in the metamorphoses of these insects which I pointed out in my *Mod. Class. of Ins.* (vol. ii. p. 58), that the hind feet of the pupa, during its inactive state, are partially covered by the wings, is not represented amongst the figures which he gives of the pupa, in all of which (although represented in the quiescent state) all the legs are figured as free. The appendages at the extremity of the body of the male, hitherto undescribed, have not been represented in the necessary detail. The predaceous habits of the genus have long been known; the following is Schneider's account of the mode of attack:—"Rhaphidia quum vivum insectum prope se conspicit, prothorace sursum flexo, capite deflexo; statim mandibulis impetum facit. Quum insectum se movet subito Rhaphidia regreditur; insecto autem debili vel jam mortuo rapide mandibulas corpori immittit idque perforat aride partium mollium humorem sugens," p. 42. Of the habits of the larvæ he states, "Larvæ in fissuris corticis arborum sæpius etiam sub cortice vetusta atque inter

truncum ipsum et corticem habitant. Totam per æstatem et initio auctumni in corticis arborum fissuris ambulantes adscendunt et descendunt ut victum quærant idque præcipue quod Stern observavit hora meridiana cæloque sereno." In this state they are very pugnacious, destroying and devouring each other, but appearing to prefer the Diptera for food on account of the greater softness of their bodies. The following observations on the reproduction of the limbs in these insects are of great interest, as the genus from the subquiescent state of the pupæ may be deemed to hold an intermediate station between the insects which undergo an incomplete and a complete metamorphoses—*no instance, so far as I am yet aware, having hitherto been observed in which insects having a complete metamorphosis have been found to possess the power of reproducing their limbs.*

"Interdum in exuviis corporis læsæ partes restituuntur sic larvam cujus pes anterior et antenna morsu alius larvæ in una eademque arcula asservatæ articulo ultimo spoliata erant, ante ultimas exuvias has partes recipere vidi. Læsiones vero post ultimas exuvias præsertim graves, et quæ breve tempus ante evolutionem in nympham accipiuntur plerumque mortiferæ sunt et unicum tantum animal verti casum in quo larva licet amissa post ultimas exuvias dimidia antenna in nympa et imaginis statum transiit *sed antenna illa læsa dimidiata permansit et in nympa et in imagine.*" p. 49. These larvæ both for hybernation and pupation "in arborum cortice cava ovata erodunt—Procul dubio hac re in errorem indutus est Waterhouse (Trans. Ent. Soc. vi. p. 1.), larvam xylophagam esse opinatus est scobes ligni cohærentes vel conglutinatas pro excrementis habens quæ vero quod satis expertus sum, speciem habent granularum minutarum forma oblonga colore nigro."

Adopting my family Mantispidæ as distinct from Rhaphididæ, the author gives the following distribution of the two groups:—

Fam. RHAPHIDODEA, prosterno postico, pedibus omnibus homonomis, &c.

Capite obovato, ocellis 3, prosterno triangulari alarum costis (pilosus), radialibus cubitalibusque in ramulos dichotomos exeuntes.

Gen. *Rhaphidia*, Linn.

Capito quadrato, ocellis 6, prosterno libero elongato, alarum ramulo unico radiali in furcam exeunte pedibus abbreviatis.

Sub-Gen. *Inocellia*, Mihi.

Mantispa crassicornis, Schum.

Fam. MANTISPIDEA, prosterno antico, pedibus anterioribus raptoris, &c.

Ocellis 6, &c., Gen. *Mantispa*.

Vertice ocellis instructo, &c.,

Sub-Gen. *Anisoptera*, Mihi;

sen *Mantispa notha*, Erichs.





PLATES LXXVI AND LXXVII.

A DECADE OF AUSTRALIAN THYNNIDEOUS INSECTS.

HAVING obtained, since the publication of the preceding number of this work, a considerable number of new species of Thynnideous insects from Australia, I hasten to illustrate some of the more conspicuous, confining myself here to those of the male sex, not deeming it advisable to describe the females as distinct species, which may probably prove to be the opposite sexes of individuals now illustrated.

THYNNUS BROWNII.

(Plate 76, fig. 1 and details.)

T. niger capite et thorace opacis, fulvo tomentosis et maculatis; abdomine flavo maculato, segmento ultimo omnino flavo, antennis longis apice gracillimis, pedibus castaneo-rufis ♂. Long corp. lin. $14\frac{1}{2}$; Expans. alar. lin. 27.

The head is black above, finely punctured, and clothed with fulvous pubescence, with a slender yellow streak behind each eye, and two small triangular yellow dots behind the ocelli; the clypeus is prominent, convex, and yellow, the extremity terminating in a semicircular curve, not entirely concealing the ciliated labrum. It is yellow, which colour ascends in an oval patch as high as the base of the antennæ, where it is marked with a black line, which terminates in a conical chesnut-coloured central spot. The margins of the eyes and the tubercles on which the antennæ arise are also yellow. The mandibles are yellow, with the tips of the two teeth brown; beneath they are clothed with a very thick brush of black hairs; the sides of the basal part of the maxillæ are also clothed with numerous long hairs. The maxillæ and mentum (except at the base), as well as the palpi, are fulvous. The antennæ are long (measuring rather more than eight lines in length), and gradually attenuated from the middle to the apex, where they are very slender; they are entirely black. The thorax is obscure black, and very finely punctured, and also very thickly clothed with short fulvescent pubescence, which becomes longer and greyer upon the metathorax. The collar has the anterior margin forming a slender raised edge, which is yellow, but slightly interrupted in the middle: the hind margin is broadly fulvous; the dorsum is marked with four impressed longitudinal lines

appears to be bilobed. The eyes are margined with yellow. The mandibles are long, slender, and yellow, with the tips brown, the inner edge very slightly setose. The maxillary palpi are broken in my specimen. The antennæ are short, filiform, and black. The thorax is robust, black, polished, and very finely punctured. The prothorax has a very slender yellow raised anterior margin, interrupted with black in the middle; the posterior margin is more broadly margined with yellow, which extends only to the wing-scales, which are also yellow. The metathorax is marked with four deeply-impressed lines, having a yellow spot in the middle. The scutellum is black at the base, with a broad yellow lunule, with a separate yellow spot at each side; near its anterior angles, behind the scutellum, is another slender yellow lunule, and two lateral yellow spots, and the metathorax is nearly occupied by a large angulated yellow spot, which is narrowed behind; its lateral edges, which are very prominent, being also yellow; each side of the mesothorax is marked with two yellow spots beneath the base of the wings. The abdomen is elongate-ovate, convex, black, very finely punctured; each of the six anterior segments with a slender transverse yellow fascia across the middle, interrupted down the centre of the abdomen; the penultimate joint beneath is armed with two prominent tubercles (fig. 1 c), and the terminal joint is elongate, lanceolate, the tip acutely pointed, and the base on each side produced into a short point (fig. 1 b). The intermediate segments of the abdomen beneath are fulvous, with a slender interrupted transverse fascia on the hind margin. The legs are fulvous; the anterior coxæ large, flat and yellow; the inner edge produced into a narrow piece, which at first sight appears distinct; the mesosternum is also produced behind into two yellow points, which appear like a pair of supplemental coxæ. The basal segment of the abdomen beneath is conically carinated.

Inhabits New Holland. In Mus. Brit. et Westw.

I have adopted the MS. name attached to this species in the British Museum cabinet.

THYNNUS TROCHANTERINUS, *Westw.*

(Plate 77, fig. 3.)

T. capite et thorace nigro et pallide flavo-variis, abdomine pallide flavo, nigro cingulato, femoribus flavis basi et apice nigris tibiis tarsisque castaneis ♂.

Long. corp. lin. $8\frac{1}{2}$. Expans. alar. lin. 14. ♀

This species is nearly allied to *Th. variegatus*, *Klug*, but much larger, and with different coloured scutellum and feet. The

head is of moderate size, black, and finely punctured; the hind margin with a slender yellow line, which extends behind the eyes, where it is dilated on each side; there is also a small yellow patch extending from the upper angle of each eye towards the ocelli; there is also a yellow patch between the antennæ at the base, these being rather wide apart. The clypeus is oval and yellow; the apex narrow and rather rounded; the space between its sides and the inner margins of the eyes is depressed and yellow, with a small black dot. The mandibles are yellow, with the tips black; the basal piece of the maxillæ and the mentum are black; the former scarcely hairy. The terminal sixth joint of the palpi appears to have been broken off in both the palpi in my specimen; the terminal joint of the labial palpi is slenderer and longer than the preceding joint. The antennæ are rather slender and filiform, being four lines long; they are entirely black, whereas *T. variegatus* has the basal joint yellow. The pronotum is margined entirely with a rather narrow edge of yellow; the disc of the mesonotum is black, with four impressed lines and a yellow patch behind, and a slender lateral line; the wing-covers are also yellow; the scutellum is black, with a yellow lunule across the middle, pointed in front; behind this is a slender yellow curved line, united with two lateral yellow spots; and the metathorax has three yellow spots, the central one largest and dilated in front. The surface of the thorax is finely punctured, and slightly pilose; the prosternum bears two yellow spots, and the sides of the mesosternum two fulvous ones beneath the insertion of the fore wings; this part is also clothed with fulvous pubescence. The abdomen is elongate, ovate, with the tip acute; it is pale-yellow coloured, the basal joint above with a small conical spot, two minute dots, and the hinder margin of black. The three following segments are marked with black transverse bars, the extremity of one and the base of the next being narrowly marked with this colour; the middle of the inner edge of these bars is rather produced in front; the following segments are black; the fifth and sixth marked with yellow lateral lunules; the basal segment of the abdomen beneath is conically elevated, and the other segments are coloured as above, the black margin of the second and third joints being very narrow; the anal segment is entire, but terminated by a minute slender acute point. The coxæ are yellow, with black marks; the trochanters black, the femora yellow, with the disc and apex black, the fore edge of the anterior and middle pairs being more chesnut, which

is also the colour of the tibiæ and tarsi; the wings are slightly stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS TUBERCULIVENTRIS, *Westw.*

(Plate 76, fig. 2.)

Niger, griseo-pilosus clypeo flavo-vario, abdomine elongato nitido nigro, segmentis utrinque fulvo maculatis, segmento 2ndo subtus tuberculis duobus parvis conicis instructo. ♂

Long. corp. lin. 12. Expans. alar. lin. 20.

The head is small and black, closely and finely punctured; the clypeus is slightly prominent, and convex; yellow, with a slender curved dark line on each side, and a dark central spot; the apex is truncate, nearly concealing the ciliated labrum: the yellow margin of the clypeus is extended to the eyes, which have an abbreviated yellow margin to the lower part, both in front and behind; the head has also two minute yellow dots behind the eyes; the antennæ are black, with two minute yellow frontal dots; the mandibles are yellow, with the tips brown; the maxillæ and mentum are black, the former, as well as the maxillæ, strongly fringed with pale hairs. In other respects, the trophi agree with *T. Brownii*. The thorax is entirely black, and clothed with gray pubescence; it is of an oval form; the abdomen is of an elongate oval form, broadest across the middle; it is black and shining, each segment with a large fulvous lateral spot, which becomes confluent on the sixth segment, the terminal joint being entirely fulvous; the basal segment is conically elevated in front above, and beneath it is not carinated; the second segment is, however, armed beneath with two small conical tubercles; this and the following segments are dark yellow, with black margins; the terminal segment is armed at the tip with a short acute black spine, the sides of which, at the base, are slightly dilated. The legs are chesnut-coloured, with the coxæ and base of the femora black; and the wings are very slightly stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) MELLEUS, *Westw.*

(Plate 76, fig. 4.)

T. capite thoraceque nigris flavo variis, pronoto flavo, puncto parvo nigro, abdomine elongato fulvo, nigro-cingulato, pedibus fulvis, alis flavis. ♂

Long. corp. lin. 9½. Expans. alar. lin. 16.

The head is rather small, black, and punctured; the eyes are margined with yellow, except on the crown of the head, the pale

marginal line running across the back of the head; between the antennæ is a yellow V like mark. The clypeus is large, prominent, convex, and yellow, truncated at the tip, exposing the porrected semicircular and ciliated yellow labrum; the mandibles are slender and yellow, with the tips brown; the maxillæ and mentum are pale yellow—the former scarcely ciliated; the maxillary palpi are rather short; the antennæ are slender and filiform, measuring rather more than 4 lines in length. The collar is fulvous, with a small black spot in the middle of the anterior margin. The mesonotum has the lateral margins rather elevated, and the middle marked with a yellow spot; the scutellum also bears a yellow spot of like size, followed by a curved yellow lunule; and the metathorax, which is broad with the lateral angles rounded, is marked with two oblique yellow lines; the wing-scales are yellow, and the space between the scutellum and postscutellum is marked with yellow. The abdomen is oblong, rounded before and behind, and sub-depressed, of a rich orange colour, with the base and the incisions black; the anterior segment is channelled down the middle, and the terminal ventral segment is armed with a short acute deflexed spine, the sides of which, at the base, are dilated: the thorax beneath is black, clothed with silvery gray pile; and each side of the mesothorax and metathorax bears a yellow spot beneath the base of the fore-wings. The abdomen beneath is fulvous, fasciated with black; the legs are fulvous, with black coxæ; the posterior pair streaked with yellow. The wings are golden yellow, with the stigma fulvous.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) TRIFIDUS, *Westw.*

(Plate 77, fig. 4.)

T. gracilis, elongatus niger, capite thoraceque opacis flavo variis, abdomine nitido segmentis singulis 5 basalibus lunulis duabus flavis fasciolam nigram includentibus, pedibus obscure castaneis. ♂

Long. corp. lin. $8\frac{1}{2}$. Expans. alar. lin. $13\frac{1}{2}$.

This species seems nearly allied to *Agriomyia affinis*, *Guér.* (Mag. de Zool., 1842, p. 4), but that species is too concisely described, and the original specimen too mutilated to allow me to determine its specific identity therewith. The head is obscure and black, and finely punctured; the eyes margined with yellow, except on the crown of the head; the middle of the face with a yellow V like mark; and the front of the head narrow, yellow, and with a black, trifold divergent mark. The clypeus is rather

emarginate at its anterior margin, exposing the labrum, which is yellow, and with its anterior edge slightly bilobed; the mandibles are yellow, with the tips black. The antennæ are short and black (scarcely measuring 3 lines in length); the outer edge of the maxillæ is clothed with long white hairs. The collar is black, with an entire rather narrow yellow margin. The mesonotum is black with a yellow spot in the middle, and a small one on each side behind the wing-scales, which are also yellow; the scutellum bears a yellow conical spot; the apex directed towards the head: behind this is a narrow transverse yellow lunule, and two lateral yellow dashes; and the metathorax bears two oblique yellow lines, extending to the outer posterior angles; the sides of the thorax, beneath the insertion of the wings, are also spotted with yellow. The abdomen is elongate-ovate and depressed, broadest across the middle, black and shining; the five anterior segments bearing a large lunular yellow spot on each side, inclosing a short black transverse line which, in the fifth segment, unites with the black-ground colour of the segment; the sixth segment bears two minute and slender yellow lunules. The body beneath is clothed with gray pubescence; the coxæ black, with yellow stripes; and the abdomen black, each of the intermediate segments with two slender yellow lunules; the terminal segment is entire, and rounded at the tip; the legs are entirely chesnut red, and the wings stained with yellowish brown.

Inhabits King George's Sound. In Mus. Westw.

THYNNUS (AGRIOMYIA?) MARGINALIS, *Westw.*

(Plate 76, fig. 3.)

T. niger griseo subpubescens, clypeo oculisque (in parte inferiori) albido tenuissime marginatis; abdominis segmentis quinque basalibus lunula tenuissima albida utrinque in margine postico notatis, pedibus duobus anticis castaneis, posticis duobus nigris. ♂

Long. corp. lin. $7\frac{1}{2}$. Expans. alar. lin. 12.

The head and thorax of this species are black, thickly but finely punctured, and not shining; the latter elongate, with the scutellum rather elevated, convex, and less strongly punctured; the clypeus is rather short, convex, black, slightly carinated down the middle and truncate at the tip, with a slender white margin extending as far as the eyes, to which it also forms a slender margin about as high as the insertion of the antennæ. The back part of the head is marked with two obscure red spots. The antennæ are black, the tips being, however, broken off in my

unique specimen. The mandibles are black on the inside and yellow on the outside, the tips and inner margin being, however, black; the maxillæ have a long row of slender hairs on the outside, and the palpi are rather elongated. The thorax is black, the wing-scales and a very slender transverse line behind the scutellum being dirty white; the abdomen is black, depressed, narrower than the thorax, its broadest part being in the middle; the five anterior segments marked on each side, at the posterior margin, with a very slender dirty white lunule; the basal segment has a deep longitudinal channel down the middle; the body beneath is black, with slight gray pubescence, the intermediate segments of the abdomen with extremely slender white lunules behind; the apical segment is entire and rounded. The anterior feet are castaneous, with the tips of the tarsi black; the middle feet are castaneous before, but black behind, and the hind feet are entirely black. The wings are slightly tinged with grayish, and the stigma is black. Inhabits King George's Sound. In Mus. Westw.

THYNNUS DIMIDIATUS, *Westw.*

(Plate 76. fig. 5.)

T. niger punctatus abdomine (segmento basali excepto) tibiis tarsisque ferrugineis, ano 5-dentato. ♂

Long. corp. lin. 6. Expans. alar. lin. $9\frac{3}{4}$.

This curious species has the head and thorax entirely black, finely punctured, and clothed with slight gray pubescence; the clypeus is porrected between the mandibles, which are dark castaneous, with the tips black. The antennæ are rather short (about two lines long), and black; the trophi are black; the outside of the maxillæ clothed with long whitish hairs; the disc of the mesothorax is scarcely marked by the four impressed lines, and the metathorax is far more delicately punctured than the scutellum. The dorsal segment of the abdomen is black; the remainder dark-brick red. The segments are much constricted at the articulations, where in each is a transverse impressed line running across the joint, finely serrated; the penultimate segment is armed at each side with a short ferruginous spine, and the terminal segment with a deflexed acute black point, the base of which, on each side, is armed with a shorter black diverging curved spine; the legs are black, with the tips of the femora and the tibiæ and tarsi dark ferruginous. The wings are rather tinged with gray, and the stigma is black.

GENUS AELURUS, KLUG.

In my sketch of the generic arrangements proposed in this group of insects, given in pp. 102 and 103, I accidentally omitted to mention that Dr. Klug, in his Memoir in the Berlin Transactions for 1840, had described a new genus, founded upon two Brazilian species, which appeared to possess characters of higher value than those of the majority of the groups proposed by M. Guérin Meneville.

Dr. Klug chiefly relied upon the structure of the trophi of the male for the characters of his genus, not describing the parts of the mouth of the other sex, nor noticing a character which at once distinguishes the genus from all the other Thynnideous insects which I have yet examined (except as mentioned below), namely, the homogeneous structure of the upper maxillary lobe, which, in the typical Thynnides, has the horny portion divided into two parts by a narrow transverse leathery connexion; a peculiarity, doubtless, connected with the structure of the parts of the lower lip, to which this lobe forms a defending sheath. That this division does not exist in Aelurus, I infer from Dr. Klug's figure 16 *a*, compared with the same organ in the Australian insect, next to be described, which, notwithstanding some variation in the general form of the body, must, I conceive, be assigned to Dr. Klug's new genus, which is thus shown to inhabit the Australian as well as the South American Continent, a peculiarity in nowise surprising, when it is remembered that these are the two geographical seats of the whole group.

AELURUS ABDOMINALIS.

(Plate 77, fig. 5, and details.)

SYN.—*Agriomyia abdominalis*, Guérin, Mag. de Zool., 1842, p. 5.

A. niger aureo-setosus, collari punctis duobus transversis, scutello macula flava notato, abdomine (basi segmenti primi excepto) pedibusque fulvo-rufescentibus. ♂

Long. corp. lin. 6½. Expans. alar. lin. 11.

The head is black, transverse, and flat on the crown, and finely punctured, the face is furnished in the middle with two small tubercles, at the sides of which the antennæ are affixed; the clypeus is slightly porrected, with its extremity truncate and yellow; the mandibles (fig. 5 *b*,) are fulvous, with the tips brown; they are clothed beneath with long hairs; the labrum is small, entire, and strongly ciliated. (Fig. 5 *a*.) The antennæ are long, slender, black, and filiform, with the tips acute, (measuring nearly

4 lines long); the maxillæ are small, with the apical lobe rounded and homogeneous (fig. 5 c,) with the sides clothed with long hairs, and the palpi very long and slender, the basal joint being the shortest and the third the broadest. The mentum (fig. 5 d, 5 c,) is narrow (with the labium inflexed), the extremity furnished with a very long curved pencil of hairs (scarcely shorter than the maxillary palpi), and the labial palpi are elbowed at the tip of the first long joint, which is also furnished with a long diverging bush of hairs; the sides of the head are furnished with long fulvous hairs directed backwards. The collar is but slightly developed, with two minute transverse yellow spots in front; the mesothorax has its upper surface marked with four longitudinal channels; the scutellum bears a yellow spot, followed by a transverse yellow lunate spot; the metathorax is oval, attenuated behind, nearly polished, slightly setose; the abdomen is rather long, depressed, and narrowed in front, the basal joint triangular, convex above, channelled down the middle; the base black, the extremity of the remainder of the abdomen of a fulvous castaneous colour, slightly clothed with fulvous hairs, the terminal segment is carinated beneath, tridentate at the tip, the middle tooth being the longest and black at the tip. The coxæ and trochanters are black, and the legs fulvous castaneous. Wings almost hyaline, with black veins and stigma.

Inhabits Van Diemen's Land. In Mus. Westw.

I am indebted to R. H. Lewis, Esq., for this interesting insect.

M. Guérin has described another Australian species, allied to the preceding, under the name of *Agriomyia spinolæ*, with the observation that they differ from the rest of the genus, in their longer antennæ, and the long hairs at the sides of the head, so that they "pourraient bien devenir types d'un nouveau genre," for which he proposes the name of *Tachynomyia*, which, both on account of its want of priority in date and its insufficient characters must be rejected in favour of the name *Aclurus*.

The plant represented in plate 76 is *Solanum stelligerum*, and that in plate 77 is the Orchidaceous *Arethusa catenata*.

Obs.—The curious structure of the anterior coxæ of *T. interruptus* having induced me to examine the same part in other species, I have found that the male of *T. (Thynnoides) fumipennis*, (ante, p. 108), possesses a singularity of structure which

I have hitherto observed in no other insect, having the coxæ dilated, and together forming a broad nearly circular cup, with the margins elevated, large enough to allow the under-side of the head to rest within it when deflexed.

Obs. 2.—*Thynnus decipiens* (ante, p. 105), is closely allied to *T. dimidiatus* above described; it may be thus characterized:—

T. decipiens; niger punctatissimus, abdomine elongato, segmentis constrictis, ultimis duobus ferrugineis, ano dentato dentibus duobus primis minoribus segmentoque penultimo etiam tridentato, pedibus nigris.

Long. corp. lin. 5. Expans. alar. lin. $9\frac{1}{2}$.

Habitat in Terra Van Diemenii, Mus. Westw. Communic. Dom. J. Hooker.

Obs. 3.—I have detected (June 14, 1844,) a third Australian species of *Aelurus* in the collection of my friend G. H. K. Thwaites, Esq., of Bristol, of which the following are the characters:—

Aelurus mœrens; niger, capite et thorace obscuris cinereo paullo setosis, abdomine elongato-ovato, segmento ultimo lateribus rotundatis apice in spinam parvam producto; capite setis longis griseis postice marginato, maxillis et labio ut in congeneribus, alis fusco-tinctis.

Long. corp. lin. 7. Expans. alarum lin. $13\frac{1}{2}$.

Habitat apud Melbourne (Nov. Holl.) Mus. Thwaites.

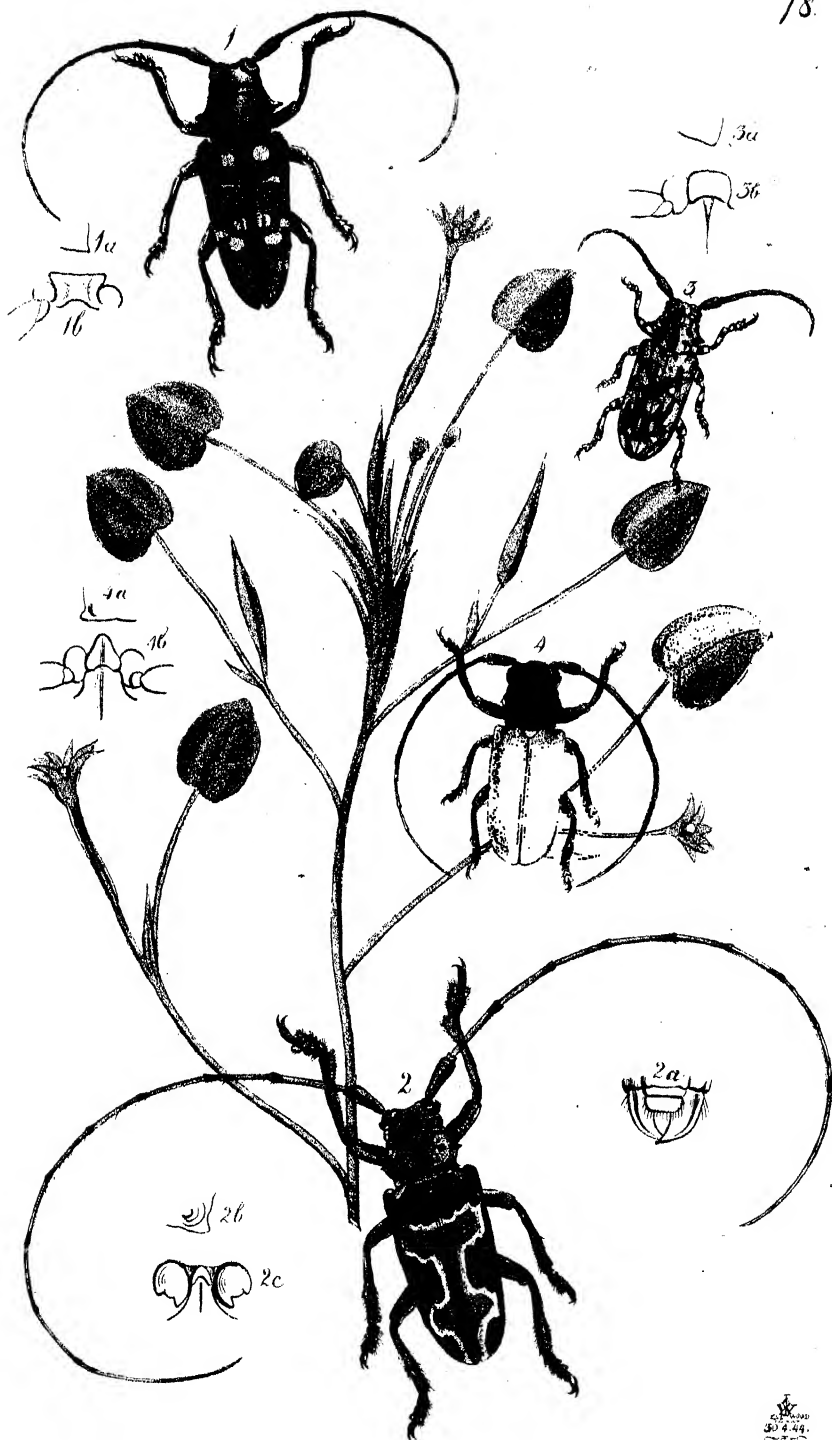


PLATE LXXVIII.

ILLUSTRATIONS OF SOME SPECIES OF LONGICORN BEETLES FROM
TROPICAL WESTERN AFRICA.LAMIA (STERNOTOMIS) COMES, *Westw.*

(Plate 78, fig. 1.)

L. nigra nitida, elytris punctatis, maculis numerosis rotundatis, magnitudine diversis, albidis et fulvis, apicibusque fulvis nigro-striatis.

Long. corp. lin. 15. In Mus. Dupont, Parisiis.

BLACK, pronotum strongly angulated in the middle of each side, from which runs a curved raised space; elytra much punctured; the humeral angles acute, and porrected; the disc of each with two longitudinal raised lines; near the suture are two round pale buff spots, edged with greenish, followed by two large round fulvous ones, rather before the middle, attached to the anterior edge of each is a slender pale line, and a small lateral dot; near the middle of each elytron are three smaller roundish spots of pale buff, arranged in a triangle, the outer one being the smallest; extremity fulvous, divided by the elevated black lines above mentioned: mesosternal process broadly truncate, but not very prominent (fig. 1 *a*, 1 *b*).

LAMIA (STERNOTOMIS ?) PRINCEPS, *Dupont's MSS.*

(Plate 78, fig. 2.)

L. luteo-fulva, elytris glauco-albidis; basi, lateribus (versus apicem dilatatis), et fascia lata media (in medio interrupta), brunneis, antennis longis, sterno parvo conico.

Long. corp. lin. 16.

Habitat in Guinea. In Mus. Dupont.

Head and thorax clothed with very short brownish luteo-fulvous pile, having a greenish tinge at the sides of the latter; the eyes margined with whitish. Antennae long, 11-jointed; the terminal joint very long and slender; they are setose beneath for about one-third of their length, and are dark gray, with a brown tinge, the joints being black at the tips. Mandibles simple (fig. 2 *a*); the sides of the prothorax are armed with a small spine; the elytra have a broad brown base, with the posterior edge irregular; the sides of the elytra are also brown, which colour extends into a large patch on each side, running more than half across the middle of the elytra; near the extremity, also, it is dilated into a broader patch of this colour; the remaining space is of a pale dull greenish colour, separated from the brown by a whitish line, following the irregularities of the latter; legs gray-brown; body beneath entirely

brownish luteous-fulvous; mesosternal process small and conical (fig. 2 *b*, 2 *c*), and but slightly prominent.

LAMIA (STERNOTOMIS) EREMITA, *Chevrolat's MSS.*

(Plate 78, fig. 3.)

L. luteo-albida punctata, supra capite et thorace nigro-maculatis, hoc striga media longitudinali nigra ante medium constricta, elytris albido et nigro variis, plaga magna irregulariter triangulari pallida basali relictâ.

Long. corp. lin. 10.

Habitat in Senegallia. In Mus. D. Chevrolat.

Upper side of the body pale luteous-buff, varied with black. The head has a patch in the middle of the hind margin, and two small spots on each side; the face has four minute oblique black spots; antennæ short, 11-jointed, black, each joint, after the second, having a broad gray ring at the base: the pronotum has a rather broad black stripe down the centre, and several irregular-shaped smaller black lateral spots, the sides being produced in the middle into an acute black point; the elytra have a large pale irregular triangular-shaped patch at the base, with two minute black dots at the sides of the scutellum, and two at a little distance below it; the remainder of the elytra are black and punctured, with numerous pale markings of irregular shape, and with pale irrorations upon the black parts; legs pale, with black rings; beneath buff-stone coloured, with a pinkish tinge; the middle of the body black and shining, a minute black spot on each side of the prosternum, and also near the outer hind angle of the mesosternum, and a spot on each side of the abdominal segments united with the black middle patch in the terminal segment. Mesosternal process broadly quadrate, and not porrected (fig. 3 *a*, 3 *b*).

LAMIA (STERNOTOMIS?) BICOLOR, *Westw.*

(Plate 78, fig. 4.)

L. obscure fusca tomentosa, elytris pallide virescenti-sulphureis.

Long. corp. lin. 12½.

Habitat. Gold Coast, Guinea. In Mus. D. Carter.

Nearly allied to *L. angulator* Olivier, from which it differs in the form of the mesosternal process. Entirely covered with a dull brown silky pubescence, except the elytra, which are of a pale yellowish-green, with an opaline gloss. Eyes and mandibles black; antennæ 12-jointed; prothorax with the sides armed with a small pointed tubercle; mandibles simple, mesosternal process small, conical, channelled, and rather porrected (fig. 4 *a*, 4 *b*).

The plant represented in the plate is *Pontederia natans*, Pal. d. B., a native of tropical Western Africa.



PLATE LXXIX.

DESCRIPTIONS OF THREE NEW ASIATIC SPECIES OF PAPILIO.

PAPILIO PALEPHATES, *Boisduval's MSS.*

(Plate 79, fig. 1.)

P. alis anticis oblongis sub-ovalibus, brunneo-nigris, serie duplici macularum albarum, versus apicem in plagam magnam dilatata, posticis ecaudatis maculis 5 cuneatis lunulisque sex submarginalibus incisurisque fulvis.

Expans. alar. unc. $4\frac{1}{2}$.

Habitat in Manilla. In Mus. reg. Paris.

Closely allied to *P. Panope*, Linn., of which it will probably prove only a geographical variety, differing from the typical Continental individuals in the large pale patch near the tip of the fore wings, and in the hind wings beneath having the veins margined with pale buff. In the disposition of the markings it otherwise accords with *P. Panope*, but its fore wings are more ovate, the apical margin being a little rounded; they are of a rich brown colour, with a large whitish patch, formed of three confluent oblong spots near the apex of the wing, followed by a single small oval spot close to the apex; and beneath these are several small conical spots, which become united with the marginal spots, of which there are only six, the apical portion of the wing not possessing them; besides these there are three oval or round spots preceding them, towards the anal angle. The hind wings are brown, with five cuneated pale patches, extending from the anal margin, succeeded by six lunate pale spots extending from the outer angle, and with five fulvous incisural spots, the anal angle bearing a larger oval fulvous spot, in which is a black dot. The fore wings on the under-side are of a paler brown colour, but similarly marked beyond the middle; the base also with several pale dashes. The hind wings have the veins from the base to beyond the middle edged with pale buff; half way between the discoidal cell and the hind margin of the wing is a row of five white crescents, shaded off into the ground colour of the wing, and separated by brown arches from a row of white horse-shoe marks, within which are six large fulvous incisural marks; the base of all the wings with small round white spots; the body and abdomen are also spotted with black.

PAPILIO XENOCLES.

(Plate 79, fig. 2.)

Syn.—*Papilio Xenocles*, Doubleday, in Gray's Zool. Misc., p. 74.

P. alis sub-ovalibus ecaudatis, fuscis albedo-virescenti striatis et maculatis, posticis macula fulva ad angulum ant notatis.

Expans. alar. unc. $3\frac{1}{2}$.

Habitat in Assam. In Mus. H. Doubleday.

Nearly allied to *P. Macareus*, from which it differs at once in the fulvous patch at the anal angle, in which respect it agrees with

P. Laodocus, De H. (*P. Delessertii*, Guér.). The upper side differs from the under only in having the ground colour of all the wings dark brown. The species is described in the work above quoted.

PAPILIO LEUCOTHOE, *Westw.*

(Plate 79, fig. 3.)

P. alis sub-ovalibus, nigro-fuscis, anticis pone medium seriebus duabus macularum lactearum, internis majoribus, cuneatis (intermediis minoribus); alis posticis ecaudatis, lacteo-albidis venis margineque postico fuscis, hoc lunulis sex punctoque anali albidis.

Expans. alar. unc. 4.

Habitat in India Orientali (circa Pulo Penang?*) In Mus. Britann.

Closely allied to *P. Clytia* † and *Laodocus* in the form of its wings and arrangement of the wing-veins (especially in the narrowness and length of the discoidal cell of the hind wings), but differs, especially from *P. Laodocus*, in its markings and colour, so that it cannot be supposed to be a suffused variety of that insect. Fore wings above dark brown, with cream-white spots; in the discoidal cell are two minute white dots, just preceding the insertion of the second and third branches of the median vein; just beyond the extremity of the discoidal cell also marked with three small white spots, followed by a curved row of nine cuneated marks of unequal size, those towards the inner margin being the largest, the one nearest the costa is round; the seventh and eighth are confluent through more than half their length, and the ninth or innermost one is long and lanceolate; these are followed by a submarginal row of eight round spots, increasing in size to the inner margin, the last being confluent with the patches preceding it. Hind wings brown, with the veins edged with, and the outer margin brown, the latter with six pale submarginal spots; those towards the anal margin being lunate, the anal angle itself with a small pale dot. Under surface similar, but the brown colour is paler, and the base of all the wings is marked with several small round white spots. Head and thorax black, with white spots; abdomen black, with a broad white longitudinal stripe on each side; body beneath spotted with black.

The orchidaceous plant represented in the plate is the *Trichosma suavis*, Lindl., from the Khoseea district of India.

* This species was obtained in a collection recently sold by auction by Mess. Stevens, of King Street, Covent Garden, containing specimens of *Pap. Laodocus*, *Fulgora Delessertii*, and *F. Lathburii* K. &c.; so that it is most probable that it was from the southern part of the eastern peninsula of India.

† It is accordingly named after her favoured rival, *Leucothoe*.

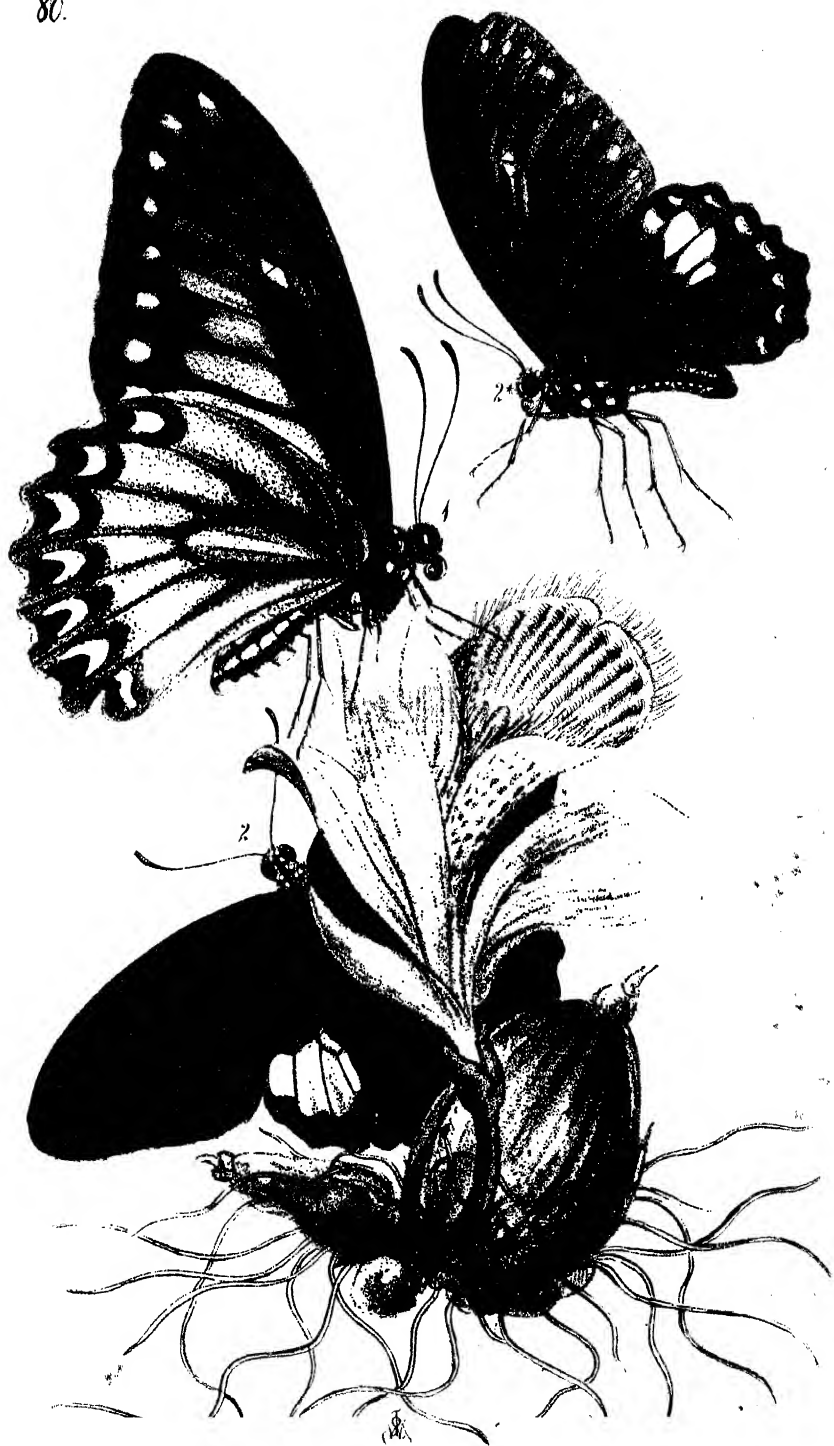


PLATE LXXX.

ILLUSTRATIONS OF TWO ADDITIONAL SPECIES OF PAPILIO, SENT
FROM ASSAM BY MAJOR JENKINS.

SINCE the publication of the 19th number of this work, in which two new species of Papilio, kindly communicated from Assam by Major F. Jenkins, were figured, I have received two cases of insects from the same gentleman, in which were contained specimens of the two species represented, for the first time, in the accompanying plate. They had previously, however, been described by myself in the Annals of Natural History, from specimens received from Sylhet by the Rev. J. Stainforth, now in the collection of H. Doubleday, Esq. In respect, therefore, to their geographical range, this circumstance becomes of importance. It is also rather remarkable, that all these new Assamese species should be so little striking in their colours.

PAPILIO POLLUX. *Westw.*

(Plate 80, fig. 1.)

P. alis latis posticis sinuatis ecaudatis, omnibus supra fuscis; anticis supra puncto ad apicem areæ discoidalis, serie submarginali et marginali punctorum ad apicem extensis, albidis plagisque duabus plus minuse oblitteratis versus angulum internum; posticis fascia latissima albida seu virescenti (venis divisa) pone medium; serie lunularum submarginali sinubusque albo marginatis; alis subtus similiter coloratis at fulvo pulverosis in partibus fuscis lunulisque submarginalibus posticarum majoribus, corpore albo punctato.

Expans. alar. unc. $4\frac{3}{4}$ — $5\frac{1}{2}$. Variat magnitudine macularum coloreque fasciæ posticarum quæ subinde fore oblitterata est.

Habitat Sylhet et Assam. Mus. Doubleday et nostr.

The under side of a fine light coloured specimen is here represented, the upper side differing in having the cream-white colour rather less diffused, especially towards the inner angle of the fore wings; sometimes, also, the marginal spots of the fore wings are entirely, and the submarginal ones nearly, obliterated towards the tip of the wings, except the large one next the tip; the large discoidal spots near the inner angle of the fore wings on the upper side are more or less obsolete, and occasionally confluent with the adjacent submarginal patches.

PAPILIO CASTOR. *Westw.*

(Plate 80, fig. 2 and 2*.)

P. alis latis anticis apice subacutis, posticis sinuatis ecaudatis, omnibus supra fuscis, anticis venis strigisque intermediis nigris, margine punctis minutis albis; posticis macula magna discoidali (versus angulum externum extensa) albâ in 4 vel 5 partes irregulares venis divisa; sinubus albo marginatis, anticis subtus macula parva ad apicem areæ discoidalis,

serie submarginali punctorum (apicalibus interdum obsoletis) punctisque marginalibus albis, posticis maculis 4 albis discoidalibus versus angulum externum alterisque tribus minoribus ad marginem analem interdum adjectis, serie submarginali lunularum albarum sinubusque albo-marginatis; corpore nigro, albo-punctato.

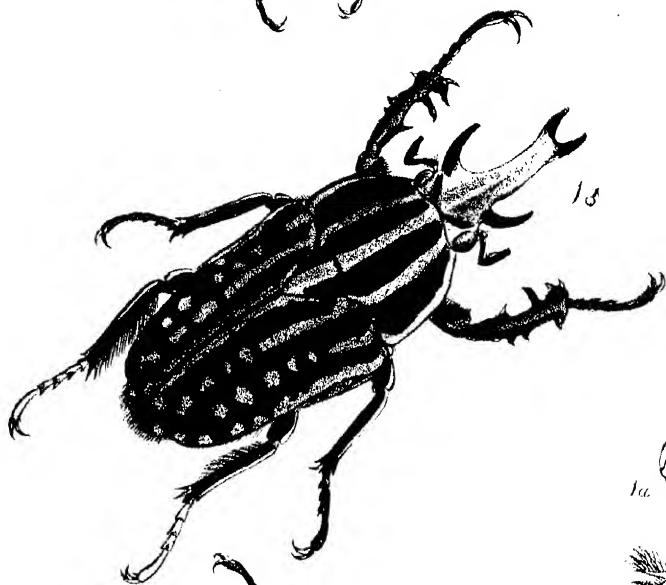
Expans. alar. unc. $3\frac{3}{4}$ — $4\frac{3}{4}$.

Habitat Sylhet et Assam. Mus. Doubleday et nostr.

The plant represented in the plate is the *Epidendrum humile*, from Nepal.



38



18



1a ♂



2a ♀



28

PLATE LXXXI.

DESCRIPTIONS OF TWO SPECIES OF GOLIATH BEETLES, FROM TROPICAL WESTERN AFRICA.

MECYNORHINA SAVAGII, *Harr*

(Journal of Boston Soc. of Nat. Hist. vol. iv, pl. 21.)

M. pronoto obscure viridi opaco lineis 5 flavis, elytris nigris velutinis sutura utrinque striisque tribus (in singulo) e maculis flavis plus minusve confluentibus notatis, tarsis posticis fulvis ♂ ♀.

Long. corp. ♂ (cornu capitis incluso) unc. $2\frac{1}{2}$; ♀ unc. $1\frac{3}{4}$.

Habitat Cape Palmas Africæ occid. tropic. D. Savage. In Mus. D. Hope.

(Plate 81, figs. 1, 2.)

The splendid addition to the family of the Goliath Beetles, represented in the annexed Plate, has been recently discovered in tropical Western Africa, by Dr. Savage, and at his request I have added coloured figures of both sexes of it to my former articles on this tribe of insects, although a previous description has appeared from the pen of the talented Dr. T. W. Harris, of Harvard University, Boston, U. S. It is closely allied to the two other species of *Mecynorhina*, but differs from *M. torquatus* in its striped thorax, maculated elytra, and furcate horn of the clypeus, in all which respects it is nearer to *M. Polyphemus*, which is at once known from it by the dark green ground colour of the elytra, anterior tibiæ of the males multidentate on the inner edge, and especially by the black colour of the posterior tarsi and the emarginate clypeus of the female of the *Polyphemus*.

The male has the head in front of the eyes armed with two porrected black horns, bent outwardly, and the front of the head is produced into a horizontally porrected broad horn, furcate at the tips; the head and upper surface of the frontal horn are entirely clothed with a very fine grayish plush or slight velvety knap, the underside of the latter dark chesnut black; the two other horns are black. The disc of the head is considerably excavated. The thorax is dark opaque velvety green above, with five broad yellowish stripes, the two intermediate ones rather dilated in the middle, and the lateral ones having only a very slender black margin. The scutellum is dark green, with a broad yellow stripe along the middle. The elytra are velvet black, each with three longitudinal rows of fulvous spots, and an irregular stripe of the same colour on each side of the suture, the marginal and sub-sutural spots confluent from the base to the middle. Each elytron

is pointed at the extremity of the suture, being most conspicuous in the female. The podex is black, with two conspicuous square whitish spots. The fore legs are robust, the femora green, varied beneath with pale whitish plush; the tibiæ black, with three unequal sized strong teeth on each side, exclusive of the apical spur, those on the outer edge being abruptly bent downwards; the tarsi of the four fore-feet black, middle tibiæ with the outer edge entire, the apical spur bent, hind tibiæ simple on the outer edge, and with a thick coating of golden brown hairs along the inner margin; posterior tibiæ pale fulvous, with the tips of the joints and claws black. The under side of the prothorax is thickly coated with whitish plush, as are also the sides of the meso- and meta-thorax; the middle of the mesosternum and thighs are dark opaline green, highly polished.

The mesosternal process is* broad, porrected and rounded in front, with a thick coating of fulvous pile on its upper side; the abdomen is dark chesnut, with the centre much depressed, and the podex is fringed with fulvous hairs.

The female agrees with the male in general characters, but has the head entire and unarmed, the clypeus broad, square, and entire, with the front margin reflexed; the disc of the head is marked with two oblong whitish patches of plush. The anterior tibiæ are entire along the inner margin, but armed with three extremely acute teeth on the outside; the middle tibiæ are armed with two teeth on the outside, near the middle, and the posterior ones with a single tooth in the middle; the underside of the abdomen is convex and green, and the sides of the breast are covered with a yellowish gray plush, intermixed with coarse hairs.

Dr. Savage informed Dr. Harris that this species and *M. Polyphemus* feed upon a vine that climbs upon very lofty trees, and that they wound the bark of the vine and extract the juice, the vine being full of a fluid as tasteless and limpid as water; and the natives when travelling in the wood, cut it off and drink the juices when no water can be easily obtained.

The males of these as well as of the other gigantic Goliath beetles are found by Dr. Savage to be much more numerous than the females. Every practical collector knows that this is the case with the common *Melolonthæ* and other species, which, like the Goliath beetles, are chiefly taken on the wing. With respect to the geographical distribution of these fine insects, Dr. Savage observed

that "the black shouldered *G. cacicus* abounds on the grain and ivory coasts, and many specimens have been procured at Cape Palmas. When in good condition the black patch is always more or less conspicuous on the shoulder of each elytron in this species, and is never replaced by the pearly white colour which appears on that part in Voet's figure and description; hence it still remains uncertain whether Voet's *Cacicus ingens* be a distinct species, or merely an accidental variety of the black shouldered species. The latter inhabits a tree that grows to the height of thirty or forty feet, with a diameter of six or eight inches, and can be taken in great numbers in the months of December, January and February, when the tree renews its blossoms and leaves. The insects are roasted and eaten by the natives, who say that they are very fat and sweet. Dr. Savage thinks that the Gold Coast, or rather the interior of Guinea, will be found to be the proper locality for *Hegemon** *Drurii*. It is probable that *Hegemon Goliatus* may be obtained nearer the line, and particularly back of the Gaboon. *Mecynorhina torquata* is found at Cape Palmas, where many have been obtained within a few years. The tree upon which they live is supposed by Dr. Harris to be a species of *Acacia*. *Dicronorhina micans* has been taken at Cape Palmas also, but seems to be rare on that part of the coast.

It appears from the observations of Dr. Harris that "the food of the Goliath Beetles is fluid, like that of the *Trichii* and *Cetoniae*, insects belonging to the same natural family, but the latter live chiefly on the nectar of flowers, and the former on the sap of plants. The long brushes on their jaws (maxillæ), and the diverging rows of hairs that line their lower lips, are admirably fitted for absorbing liquid food, while their horny teeth afford these beetles additional means of obtaining it from the leaves and juicy stems of plants, when the blossoms have disappeared. Thus every new discovery in natural history, even when least expected, serves to increase the evidence of skilful contrivance and perfect adaptation of structure in all organized beings."†

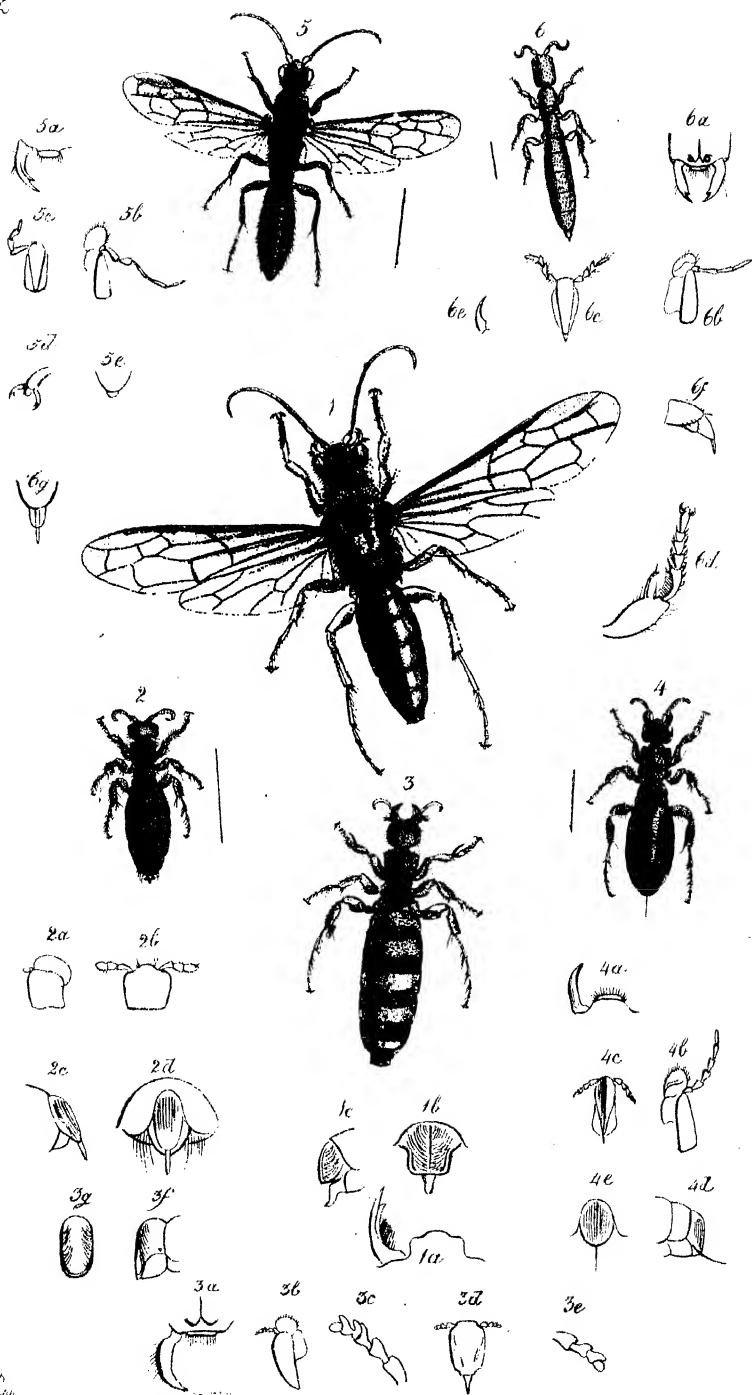
* Dr. Harris proposes to restore the name *Goliatus*, as originally proposed by Linæus to designate the *species*, and to replace it, for *the genus*, by the name of *Hegemon*.

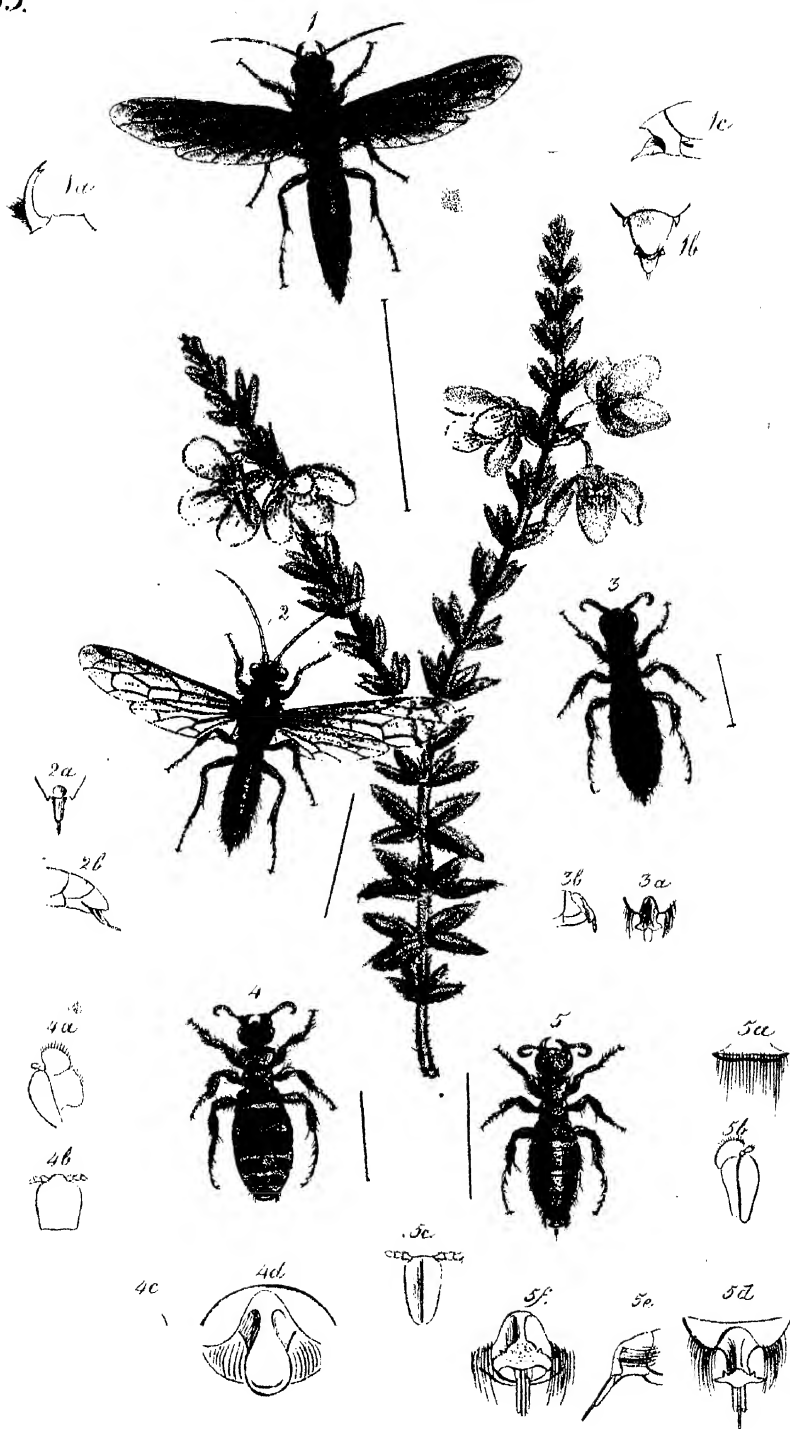
† Harris in op. cit. supra. It would be interesting to learn whether any and what distinction of natural habits exist between those Goliath Beetles which possess corneous dentated mandibles, and those which have them formed of a slender horny blade.

CERATORHINA (CELORHINA) AURATA ♂, *Westw.*

(Plate 81, fig. 3.)

In the former volume of this work (i. p. 180) I described an insect from the collection of J. Turner, Esq., of Manchester, under this name, being at the time acquainted only with the female. Recently I have observed the male of this insect in the collection of A. Melly, Esq., and Dr. Savage has forwarded specimens of both sexes to the Rev. F. W. Hope from Cape Palmas. The male is accordingly now represented, in order to render the illustrations of the species complete. It measures (including the frontal horn) 14 lines in length, and agrees in colour and general character with the female. The front of the head is, however, produced and square, with the sides and middle rather elevated, and furnished with a rather short horn in the middle of the anterior margin, the extremity of which is greatly dilated and pointed at the sides. The disc of the head is hollowed out, its basal portion extending over the impression, and deeply emarginate, the lateral angles forming two points in advance of the eyes. The fore legs are rather long, with the tibiæ unarmed on the outer edge, but the inner edge is very finely serrated (although not perceptibly so unless seen under a lens); the middle and hind tibiæ are also unarmed, and the abdomen is longitudinally channelled down the middle. The mandible of the male is simple, and that of the female armed with a horny spine.





PLATES LXXXII AND LXXXIII

FURTHER ILLUSTRATIONS OF THE THYNNIDEOUS INSECTS OF
AUSTRALIA.

THE Rev. F. W. Hope having, since his return from Italy, placed at my disposal his collection of Thynnidæ, containing several species, of which he had acquired both sexes from W. S. MacLeay and C. D. E. Fortnum, Esqrs., I am induced to add figures of these and some other allied insects to my previous illustrations, our knowledge of the true arrangement of this family depending so greatly upon the determination of the sexes of the different species.

THYNNUS LEACHIELLUS, *Westw.*Plate 77, fig. 1 ♂. (*T. interruptus*.) Plate 83, fig. 4 ♀.

Both sexes of this species having been received by Mr. Hope from Mr. MacLeay, the female is now represented. In several respects it differs from the females of the more typical species; but as these differences appear to be of no higher than specific value, it is unnecessary at present to establish a separate subgenus for its reception. The female is black varied with yellow, the head black and shining, of nearly equal breadth with the prothorax; it has on each side a deep longitudinal impression, extending from the base of the antennæ to the back part of the head, leaving the middle of the face much elevated. These impressions are smooth, but the rest of the head is punctured. The antennæ are black, the mandibles pitchy and entire, with the tips black. The lower parts of the mouth are minute, the palpi of the maxillæ almost obsolete and apparently two-jointed (fig. 4 *a*), and those of the labium rather larger and three-jointed (fig. 4 *b*). The prothorax is smooth, polished, and nearly flat on its upper side, being almost entirely, except along its posterior margin, occupied by a broad yellow fascia, bearing a short brown line in the middle; the mesothorax is short, narrow, and yellow, and the metathorax black, nearly as broad as the prothorax, angulated at the sides, and with the posterior extremity transversely deflexed. The legs are black, with the articulations pitchy and the tarsi paler. The fore tarsi are densely spinose, the middle tibiæ thick and also setose, the setæ mixed with short spines, and the hind tarsi long, slender, and very setose. The

abdomen is large and convex, the basal segment with a yellow fascia before the extremity, and behind the fascia marked with two slender elevated carinated striæ. The second segment is large, with a yellow fascia, and with the entire surface marked with fourteen or fifteen transverse elevated carinated striæ. The third and fourth segments are black and polished, the third with a slender pale yellow fascia, dilated into a round yellow spot at each side, and the fourth with a rather broader fascia, interrupted in the middle, and also dilated at the sides; the fifth segment is very deeply emarginate above for the reception of the sixth segment, which is very delicately transversely streaked at the base and sides, the extremity forming a thick truncated anal appendage (fig. 4 c, 4 d), rounded beneath, where it is marked by a semicircular impression. The abdomen beneath is entire, with the fifth segment longitudinally striated. The length of the female is nearly six lines. The specimen of the male sent by Mr. MacLeay with this female is smaller than my individual, measuring only $10\frac{1}{2}$ lines in length, and having the head and thorax more coated with fine short hairs, my specimen having been injured by the attacks of insects.

Mr. MacLeay has forwarded this species under the name of *T. interruptus*, Leach, being the same name as is applied to the male in the British Museum collection, and which was thence adopted by me in p. 115. As, however, Dr. Klug has described a species from Southern Brazil with the same name, I have been compelled to give it a new specific denomination.

THYNNUS SHUCKARDI, Guérin.

(Matér. s. l. Thynnides, Mag. de Zool. 1842, pl. 100, fig. 13 ♂. *T. ferrugineus*, Leach MSS.)

The male of this insect having been described and figured by M. Guérin Méneville, in the Magasin de Zoologie for 1842, I have not thought it necessary to refigure it; but as Mr. Hope has received both sexes from Mr. MacLeay, I have figured the female, and added M. Guérin's description of the male, which is as follows:—

Male.—"Noir chaperon et base des mandibules jaunes, tête et abdomen [thorax*] couverts d'un duvet jaune très-dense et à reflets dorés soyeux. Dessus de l'abdomen d'un jaune ferrugineux, plus pâle à la base avec la plaque inférieure du dernier segment très-saillante en arrière lancéolée, strié transversalement et terminée

* I presume that M. Guérin has made a mistake, by describing the abdomen instead of the thorax as covered with down, the abdomen being naked in the section of the genus to which *T. Shuckardi* belongs.

par une épine aigue et un peu arquée en haut. Ailes jaunes transparentes à base, et nervures brunes. Antennes, pattes et dessous du corps noirs, avec un faible duvet gris-jaunâtre. Long. 26 mill. [13 lin.] Hab. la Nouvelle Hollande.”*

Female.—(Pl. 83, fig. 5.) The specimen of this sex sent by Mr. MacLeay in company with the male, is seven lines long, and of a chesnut colour. The head is convex and punctured, slightly broader than the prothorax; the antennæ chesnut-brown, the clypeus truncate in front, the labrum short and strongly ciliated (fig. 5 *a*), the mandibles are large, sickle-shaped, and entire, chesnut coloured, with the tips black and furnished with long hairs on the outer margin of the under side; the maxillæ (fig. 5 *b*) are small and the maxillary palpi almost rudimental, the mentum also small and furnished with minute 3-jointed palpi (fig. 5 *c*). The prothorax is almost flat above, and nearly transversely quadrate, with a row of strong punctures along its fore margin; the meso and metathorax are more punctured, the latter with the sides obtusely angulated, and its hind part not so suddenly and transversely deflexed as in the preceding species; the femora are black, the tibiæ (especially the fore pair) more pitchy, and the tarsi pitchy and very setose; in their structure they agree with the preceding species. The abdomen is large, oval, and convex, the basal segment rugose, with a carinated transverse stria near the apical margin; the following segment is large, with seven or eight carinated transverse striæ across it, the posterior ones being wider apart; the third segment is irregularly punctured, as is also the 4th on its posterior margin, where it is furnished with irregular gray hairs; the fifth segment is deeply emarginate for the reception of the anal segment, which is contracted at its base and dilated into a flattened truncated terminal plate, with a minute tooth on each side above and a waved slit below, whence the exerted aculeus and its appendages are emitted; the sides of the preceding segment are furnished with long golden-coloured setæ; the entire body is black beneath, the abdomen entire, and punctate, and the fifth segment irregularly but transversely rugose.

* The following are the characters of a species in my collection closely allied to *T. Shuckardi*:—

THYNNUS GUERINII, Westw. Niger, capite et pro- et mesothorace aurotomentosis, metathorace griseo piloso, clypeo et mandibulis flavis; abdomine laevi nitido supra fulvo-brunneo basi pallidiori, subtus nigro, brunneo vario, spina apicali lanceolata, basi utrinque angulata apiceque acuto instructo, alis flavidis anticis basi fuscis venis stigmatibusque nigricantibus, femoribus nigris tibiis tarsisque piceo-brunneis. Long. Corp. lin. 12. Expans. alar. lin. 23. Habitat King George's Sound. Mus. Westw.

THYNNUS (THYNNOIDES) OBSCURUS, *Klug.*

(Ueber Thynnus F. p. 22, Pl. annex. fig. 4 ♂.)

The male of this species having been described and figured by Dr. Klug, the opposite sex only is here represented; both sexes having been forwarded to Mr. Hope by Mr. MacLeay, under the name of *T. nasutus* Mc. L.

The male is described as follows by Dr. Klug:—

Th. fusco-niger albido villosus, pedibus brunneis. Mas. Long. lin. 10.

Ubique denso punctatus. Clypeus porrectus dorso convexus, carinatus apice truncatus, flavo marginatus. Mandibulæ flavæ marginibus apiceque nigris. Antennæ abdomine vix breviores. Prothorax apice membranaceus pallidus, tegulæ apice testaceæ. Caput antice, genæ, pectus, metathorax, latera abdominis dense albo villosa. Alæ infuscatæ, nervis stigmatæque nigris. Pedes brunnei, coxis, tarsis, anticorum femoribus basi nigris; abdominis segmentum dorsale ultimum dorso impressum; spina in abdominis apice porrecta lanceolata acuta incurva, basi utrinque obsoleto tuberculata.

This sex, which I have received from Mr. Curtis, differs from the males of the other *Thynnoides* in not having the anterior coxæ dilated and cup-shaped.

The female (Plate 82, fig. 2,) partakes of the obscure and sericeous appearance of the male, being black, with a slight pitchy tinge, the head convex and extremely delicately punctured, the punctation being visible only with a lens, the clypeus short and truncate at the tip, the mandibles reddish, with the tips black, the antennæ pitchy, the maxillary palpi (fig. 2 *a*) almost obsolete, the labial palpi (fig. 2 *b*) longer and 3-jointed. The thorax is black and finely punctured, the hind margin of the prothorax membranous and pitchy, the legs pitchy brown and thickly setose; the abdomen is large and convex, the first segment widely punctured, with a single carinated stria near the hinder margin, the second segment large and transversely marked with about seven carinated striæ, the third segment is very finely punctured, and divided transversely into two parts by an impressed line; the hind part of this and the following segments clothed with very fine gray down. The anal segment (fig. 2 *c*, 2 *d*) is deflexed, oval-truncate, and longitudinally striated, with the aculeus exerted and directed downwards; the basal segment beneath is angulated. The body beneath is black, with a gray sericeous coating, and with the fifth segment very thickly punctate. The specimen of the female sent by Mr. MacLeay is six lines long.

THYNNUS (THYNNOIDES) GRACILIS, *Westw.*

(Plate 83, fig. 2, 3.)

♂ *Th. elongatus*, totus niger, albo-setosus, alis hyalinis apicibus obscurioribus, coxis anticis sub-cochleatis.

Long. corp. lin. 8. Expans. alar. lin. 14.

♀ piceo-nigra, griseo-setosa, abdomine nigricanti, segmentis posticis postice punctatis.

Long. corp. lin. 5.

Habitat prope Portum Adclaidæ. D. Fortnum. Mus. D. Hope.

The male of this species (fig. 2) is of a more attenuated form than in the other Thynnoides. It is uniformly of a black colour, and clothed with silvery white hairs on the under-side of the body and legs. The head is transverse, black, and punctured with a tubercle between the eyes, at the sides of which the antennæ are placed, a slender, straight, polished line running down it and the clypeus, which is considerably produced, convex, punctured, with the extreme lateral edges whitish; the mandibles and palpi are black, the antennæ rather slender, and about the length of the abdomen; the thorax is black and punctured, the anterior lateral angles of the prothoracic collar are angularly prominent. The mesothorax is marked on each side with two impressed lines near the tegulæ, and within these are two abbreviated impressions, not extending to the anterior margin; the tegulæ are black. The abdomen is black, with the segments slightly constricted, each with a strong transverse impression across the base, and with a semicircular prominence on each side beyond the middle. The seventh segment is furnished with a small, circular, and rather deep impression near its extremity above, and with a minute tubercle on each side (fig. 2 *a*, 2 *b*), and the extremity of the abdomen is armed with a slender spine, the tip of which is suddenly attenuated. The legs are slender, black, and clothed with grayish white hairs; the anterior coxæ are dilated and slightly excavated. The abdomen beneath is strongly punctured; the anterior and second segment not angulated nor tuberculated in the middle, but the second and three following segments have on each side, towards the posterior margin, a very slight conical protuberance, with a slightly elevated line extending between them. The wings are hyaline, with the tips dusky, more especially at the extremity of the marginal cell.

The female (pl. 83, fig. 3) is also rather more slender than those of the preceding species; it is of a pitchy black colour, the abdomen being blacker than the rest of the body. The head is broader

than the prothorax, and nearly rounded, convex, remotely punctated, and sparingly furnished with gray hairs; the mandibles pitchy, with the tips black; the antennæ obscure pitchy. The prothorax is smooth and polished, with a row of setigerous punctures in front. The meso and metathorax are punctured, the latter with the hind part obliquely truncate. The abdomen is elongate cylindric, with the ends rounded, the basal segment deeply but remotely punctured with a transverse carinated stria, at a little distance preceding the hind margin, the space between these being delicately rugose; the second segment has one of these carinated striæ at a little distance from the base, and another at the like distance from the hind margin, the intervening space occupied by five curved striæ; the third segment has also one of these striæ near its base, the space between it and the hinder margin thickly punctate; the basal half of the two next segments is smooth, and the hind half punctured; the fifth segment is thickly setose, and the sixth forms a porrected deflexed anal appendage, dilated in the middle (fig. 3 *a*, 3 *b*). The legs are pitchy and setose; the middle and hind tibiæ also armed with minute spines on the outer edge. The body beneath is pitchy; the abdomen entire beneath, with the first and second and the posterior half of the following segments thickly punctured.

THYNNUS KLUGII, *Hope MS.*

(Plate 82, fig. 1.)

T. niger subtus argenteo-sericeus, clypeo et collare fulvis, scutello elevato pedibusque brunneis, metathoraco et abdominis basi griseo lanato; alis fulvis venis brunneis ♂.

Long. corp. lin. 18. Expans. alar. lin. 32.

Habitat Swan River. D. Roe. Mus. Hope et Brit.

This fine species, by far the largest in the family, has been appropriately named by the Rev. F. W. Hope, in honour of Dr. Klug.

The head is black and delicately punctured, rather depressed on each side, between the ocelli and eyes, the front of the head furnished with a broad tubercle, at the sides of which the antennæ are affixed; these have the basal-joint pitchy and the remainder black, and with the apical joints attenuated to a point; the clypeus is prominent and convex, nearly truncate at its extremity, and concealing the labrum, and is fulvous; the sides of the face above the mandibles (fig. 1 *a*) are thickly coated with fine silvery hairs, the mandibles are robust and fulvous brown, with the tips and

inner margin black ; they are furnished near the base beneath with a strong brush of fulvous hairs, the inferior parts of the mouth and the palpi are fulvous, the head beneath is black and thickly setose. The prothorax is dark fulvous, with the anterior margin prominent on each side, the tegulæ are fulvous, the mesonotum is black, with the lateral margins rather elevated and two impressed longitudinal lines coated with short fulvous down ; the scutellum is brunneous and elevated in the middle into two slightly conical tubercles, the metanotum is black, minutely punctured and densely clothed with fine gray hairs. The abdomen is nearly as long as, but narrower than, the head and thorax, it is elongate-ovate, convex above, black, shining, and scarcely punctate, the basal joint rather abruptly deflexed to the place of its insertion, and with a brush of gray hairs on each side ; the seventh segment is abruptly deflexed, striated and truncated, the last ventral segment terminated in an obtuse deflexed and curved point (fig. 1 *b*, 1 *c*). The femora and tibiæ are dark chesnut, the posterior pair of the former angulated in the middle of the hind margin and terminated below in a spine ; the tarsi are paler, the posterior pair being twice as long as the tibiæ, the basal joint of the anterior tarsi is coated with short silver gray hair on its outer edge. The wings are large and stained deep yellow, with brown veins and stigmata ; the supplemental vein in the first sub-marginal cell is very slender ; the body beneath is black, finely punctured and thickly pubescent ; the anterior coxæ and the bifid point of the mesosternum brunneous ; the latter is marked with three longitudinal impressed lines, which do not reach the anterior margin.

THYNNUS GRAVIDUS, *Westw.*

(Plate 82, fig. 3.)

♀ *Th. niger*, antennis mandibulis prothorace scutello pedibusque rufo-castaneis, abdomine maximo flavo fasciato. Long. Corp. lin. 14.

Habitat in Nova Hollandia. Mus. Hope.

The large size of this insect, together with its peculiar colouring and the structure of its hind femora, induce me to think it probable that it may be the female of *Th. Klugii*.

The head is small, black, and convex above, the sides and hind margin being nearly straight, with the angles rounded off: it is thickly punctated, especially in front where it is produced into a bifid tubercle, at the sides of which the antennæ are inserted ; these, judging from the two basal joints, are fulvous brown, as is also the

very short clypeus, and the broad but entire mandibles, of which the tips are black, and the under-side furnished with long hairs (fig. 3 *a*); the labrum is short, exposed and setose; the maxillary palpi are very small, but they consist of six joints (fig. 3 *b*, 3 *c*); the labial palpi are also minute, but they are four-jointed (fig. 3 *d*, 3 *e*); the prothorax is large and quadrate, being broader than the head, with the posterior portion rather narrowed; it is finely punctured and has a circular impression on each side, which may, however, possibly be accidental; the mesothorax is small and chesnut-red, and the metathorax black and punctated, with the lateral angles rounded off. The abdomen is very large, and semi-cylindrical, the first and second segments being destitute of gloss and very finely rugose, and the remaining segments glossy and impunctate; the anterior segment is yellow above, with several black dots on the deflexed basal part, and the hind margin is also black; the second segment has the anterior and posterior margin black, and of equal breadth; the following joints are also similarly coloured, but the black basal part is much broader than the posterior margin; the sides of the intermediate segments are also dotted with black; the fifth segment is nearly as large as the preceding and not emarginate at its hinder edge; the terminal segment is entirely black, thick, convex above, truncated at the extremity, with the sides slightly striated (3 *f*, 3 *g*). The abdomen beneath is pitchy, varied with obscure red, the fourth segment having two transverse marks of this colour; the first segment is angulated at its base. The legs are chesnut-red; the anterior short, with the spur at the extremity of the tibiæ half as long as the tarsi; the basal joint of the tarsi, on the outer edge, spinose; the posterior femora are emarginate on the hinder edge, beyond the middle, and the posterior tarsi are twice as long as the tibiæ.

The six-jointed maxillary and four-jointed labial palpi, together with the strong spur of the fore-feet, the character of the second segment of the abdomen, and the notched posterior femora, are characters which do not occur in the females of the typical *Thynni*. I cannot, however, regard them as of higher value than specific, considering that the true character of the females of the genus *Thynnus* consists in the rudimental size of the palpi, and which is not overbalanced by their possessing the typical number of joints.

THYNNUS PURPURIPENNIS, *Westw.*

(Plate 83, fig. 1.)

Th. niger nitidus griseo parum setosus, abdomine elongato subdepresso, alis nigricantibus purpureo-nitidis.

Long. corp. lin. 12. Expans. alar. lin. 20.

Habitat in Nova Holland. Mus. D. Turner.

This very distinct species is entirely of a black colour, more or less clothed with fine silvery pubescence, especially on the under side of the body and face. It is of a long and narrow form, almost approaching that of the males of *Rhagigaster*. The head is strongly punctured with a wide but slight tubercle in front, at the sides of which the antennæ are placed; the clypeus is long and truncate, concealing the labrum; and the mandibles are curved, rather slender, and with a tooth within near the tip, clothed on the under-side with long slender hairs; the antennæ are slender, pointed at the tips, and scarcely longer than the thorax; the maxillary palpi are six- and the labial four-jointed. The thorax is finely punctate; the scutellum convex and slightly elevated, and the metathorax elongated. The abdomen is long and sub-depressed, each segment (except the first and last) with a rather deep transverse impression across the base, and with the lateral portion of each towards the hind margin more convex, so as to render each segment more convex just preceding the posterior margin. The sixth segment is armed with a small tooth on each side at the extremity, and the anal segment is terminated by an obconical, flattened horn, finely pointed at its tip (fig. 1 *b*, 1 *c*); the wings are black, with a fine purple gloss, and the tips rather lighter coloured. The legs are black; the intermediate segments of the abdomen beneath are marked with a transverse slender impressed line near the base.

ENTELES, *Westw.*

Subgenus novum characteribus fœmineis adhuc tantum distinguendum, *Thynnus* typicalibus valde affine sed palpis perfectis gaudens.

Caput mediocre subquadratum convexum; mandibulæ integræ curvatæ imberbes. Labrum clypeo haud absconditum (fig. 4 *a*). Maxillæ (fig. 4 *b*) perfectæ palpis formæ ordinariæ 6-articulatis. Mentum elongatum (fig. 4 *c*) basi attenuatum supra longitudinaliter carinatum, labio omnino retracto, palpis labialibus perfectis 4-articulatis. Thorax tripartitus apterus. Abdomen magnum convexum, segmento secundo supra striolato apicali obtuse truncato (figs. 4 *d*, 4 *e*). Pedes robusti setosi fossorii unguibus apice bifidis.

SPECIES UNICA. ENTELES BICOLOR, *Westw.*

(Plate 82, fig. 1.)

Th. (Ent.) niger, mandibulis thorace et pedibus rufis ♀. Long. corp. fere lin. 4.
Habitat King George's Sound. Mus. Westwood.

The head is black and punctured; the mandibles red, and not bearded beneath: they are entire along the inner margin. The antennæ are short and black; the thorax is strongly punctured above, as is also the abdomen, which is entirely black, except the terminal deflexed segment, which is pitchy-red at its extremity. All the segments have a carinated stria across, near the hinder margin, and the second segment is also marked with five or six similar striæ across its disc. The apical segment is obtusely truncate, deflexed, and longitudinally striated, emitting the aculeus from its lower extremity. The legs are red, robust, and apparently formed for burrowing.

EIRONE, *Westw.*

Mas, alatus. Labrum ciliatum clypeo haud absconditum. Mandibulæ intus dente subapicali instructæ (pl. 82, fig. 5 a). Maxillæ, lobo apicali in duas partes haud diviso, palpi perfecti 6-articulati (fig. 5 b). Palpi labiales, 4-articulati articulis sensim decrescentibus (fig. 5 c) abdomen elongato-ovatum apice integrum haud spinosum (fig. 5 e). Alarum venæ ut in Thynnini dispositæ vena spuria in cellula Ima submarginali fere oblitterata. Pedes graciles unguibus apice bifidis (fig. 5 d).

Fœmina, aptera. Caput oblongum planum; oculi laterales, fere ad angulos anticos positi. Ocelli O. Antennæ fere in margine antico capitis affixæ (fig. 6 a) convolutæ. Labrum clypeo haud absconditum setosum. Mandibulæ (fig. 6 a) dente interne fere ad apicem instructæ, parum curvatæ et vix setosæ. Maxillæ parvæ palpis gracilibus 4-articulatis articulo Imo minimo (fig. 6 b). Mentum ovale compressum. Labium omnino retractum, palpi labiales 4-articulati (fig. 6 c) articulo ultimo longiori. Thorax depressus oblongus 3-partitus, mesothorace parvo; abdomen elongatum depressum apice aculeo exserto instructum (figs. 6 f, 6 g). Pedes ut videtur fossorii, tibiis anticis crassis bicalcaratis (fig. 6 d). Ungues basi dilatati (fig. 6 e).

SPECIES UNICA. EIRONE DISPAR, *Westw.*

(Plate 82, figs. 5 ♂, 6 ♀.)

Mas. E. Niger nitidus punctatus alis limpidis. Long. corp. lin. 4 $\frac{3}{4}$. Expans. alar. lin. 7.
Fœmina. Fulvescens tenuissime punctata. Long. corp. lin. 2 $\frac{1}{2}$.

The great diversity between the two insects represented in Plate 82, figures 5 and 6, and the similarity of the winged individual to the male Thynni, and of the apterous one to the genus *Scleroderma*, would have made me hesitate in publishing them as the sexes of one species, were I not convinced that entire reliance might be placed on the observations of Mr. Fortnum, by whom they were collected at Adelaide, in Southern Australia, and forwarded to Mr. Hope, during the present year.

The male (pl. 82, f. 5) is entirely black and slightly clothed with grey hairs, the head is nearly round and strongly punctured; the clypeus but slightly porrected; the labrum pitchy and setose; the mandibles are pitchy red, with the base and apex black; the thorax is oblong, truncated in front and rounded at the metathorax; the pro- and mesothorax are regularly punctured, but the metathorax is very delicately rugose. The abdomen is sub-depressed, fusiform and thickly punctured, especially at the base of the segments, the basal segment with a deep longitudinal impressed line: the three following segments are marked with a rather deep transverse impression across the base, and have a slightly raised space on each side, near the hind margin; the extremity is destitute of spines or tubercles, the under side is also simple and thickly punctured; the legs and antennæ are slender and black, and the hyaline wings, nearly colourless, but strongly iridescent, with the veins and stigma black.

The female (pl. 82, f. 6) is entirely fulvous, the fifth segment of the abdomen alone being of a darker colour; the whole surface of the body is remotely punctured, the punctures being oblong, but minute; the head is oblong and depressed, with a slight longitudinal impression in front, extending to the bifid projection at the sides of which the antennæ are placed; the mandibles, unlike those of *Scleroderma*, are curved and acutely pointed at the tips, with a small tooth on each side, near the extremity; the thorax is rather longer than the head, the mesothorax being the widest part, the sides of which are swollen; the metathorax is narrowest at the base, and rather slanting. The abdomen is long, entire and uniform, the second segment exhibiting none of the peculiarities of the true *Thynni*: the legs are short, the posterior femora and tibiæ dilated, the latter furnished on the outer margin with short strong setæ, thus differing entirely from the feet of the *Sclerodermæ*, which are not fossorial.

The plant represented in Plate 83 is the Australian *Tetrathea Thymifolia* of Smith.

In addition to the various memoirs upon the *Thynnides* noticed in the previous pages of this work, I have to add that Dr. Erichson, in his *Memoir on the Insects of Van Diemen's Land*, published in the *Archiv. für Naturgeschichte* for 1842, has described four additional species of *Thynnus*, together with a new genus named *Ariphron*, founded upon an apterous female closely allied to

Thynnus, but having the head twice as broad as the thorax (which is tripartite), the sides of the mesothorax furnished "processu alæformi"); the maxillary palpi 6-jointed, with the joints subæqual, and the tarsal ungues simple. The type *A. bicolor* is 5 lines long.

The following is its specific character given by Dr. Erichson, together also with those of his four species of *Thynnus*:—

Ariphron bicolor.—Rufus, capite piceo, abdomine nigro apice rufo. Long. 5 lin.

Thynnus Olivieri.—Mas.; niger, pedibus rufis, thorace supra fulvo villosus, abdomine supra 4—, infra bifariam flavo-maculato.

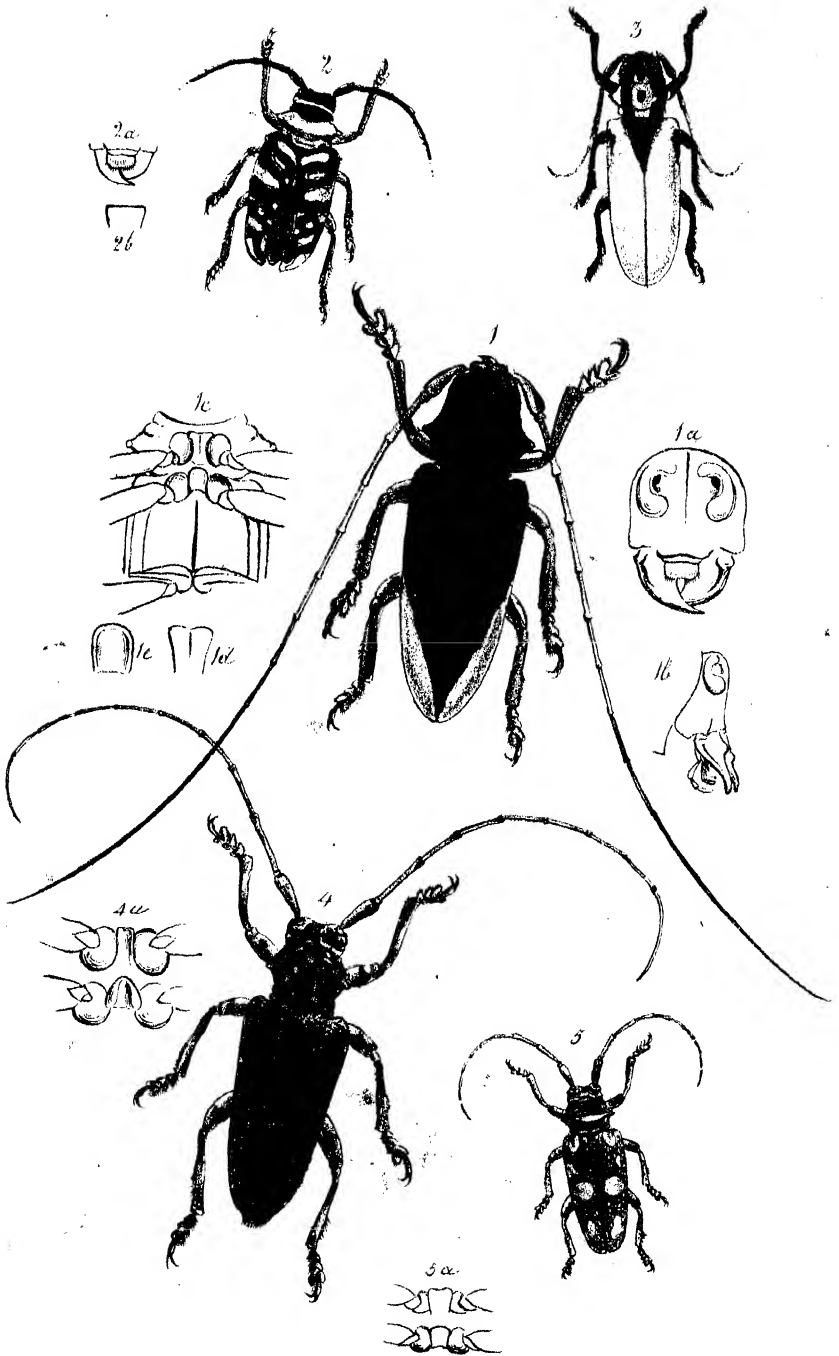
FEM.—Rufa, capite subgloboso thoraceque immaculatis abdomine piceo, segmentis 1—5.

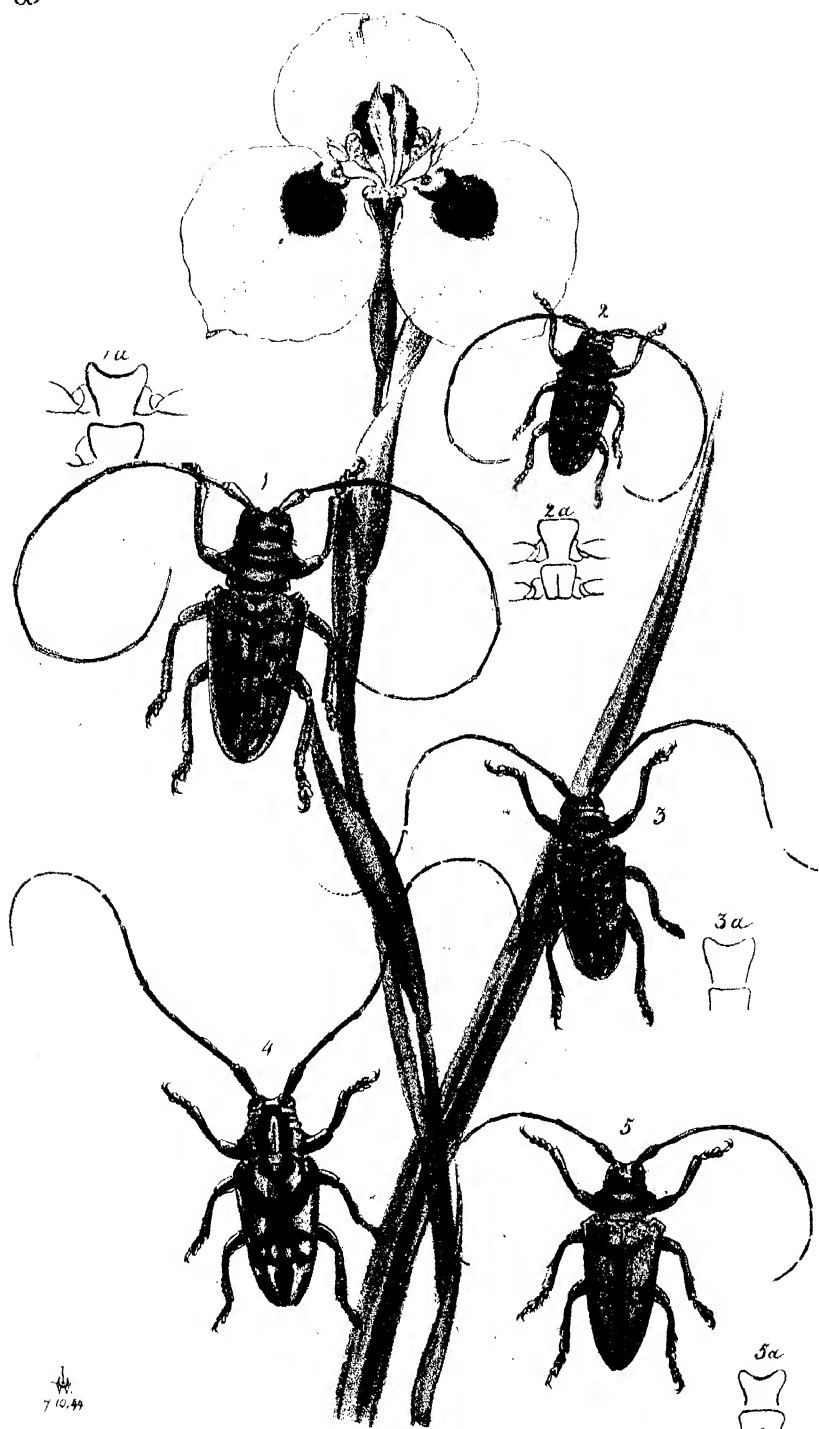
4-fariam flavo-maculatis, l. levissimo. Long. $7\frac{1}{2}$ lin.

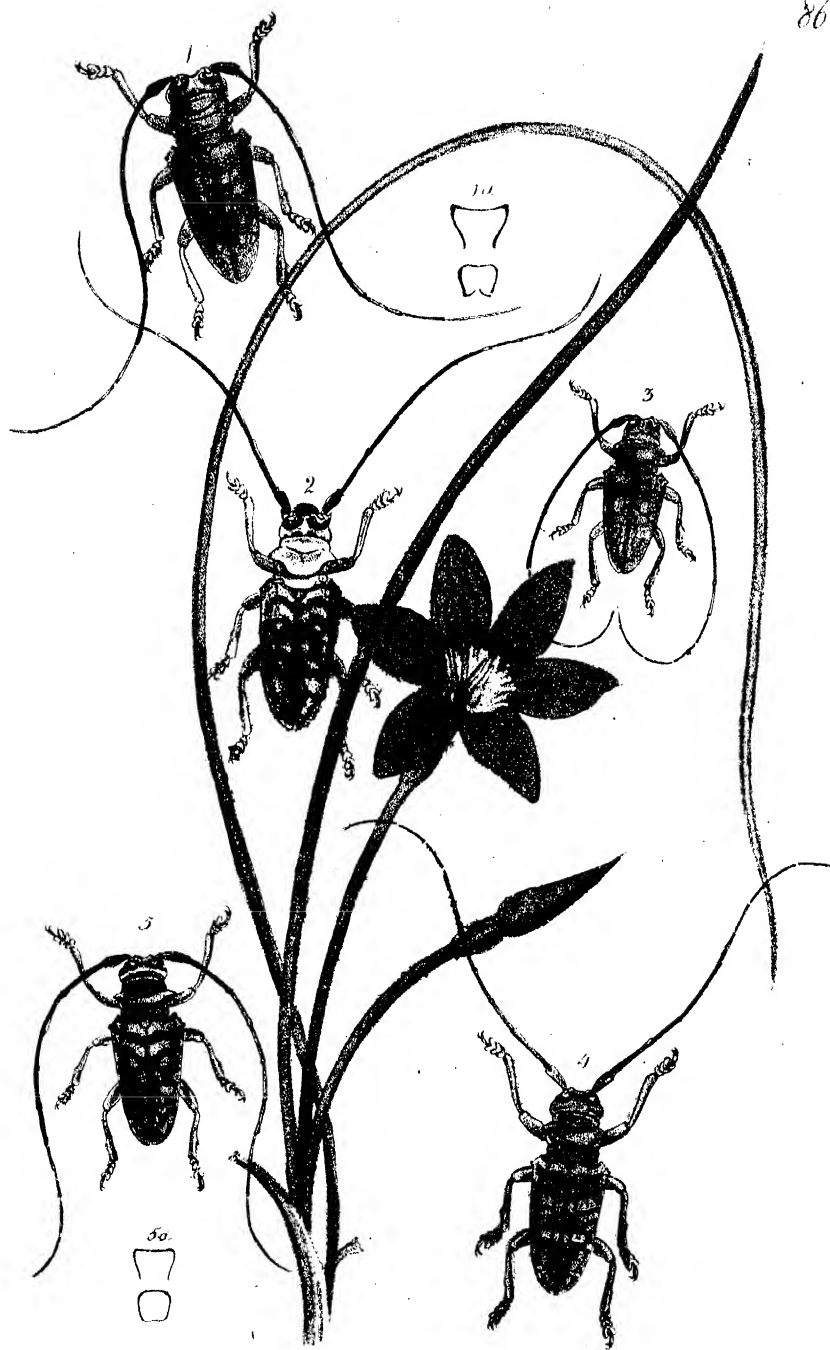
Thynnus senilis. — Niger, albido-villosus pedibus concoloribus, clypeo flavo. (Mas.) Long. $5\frac{1}{2}$ — $7\frac{1}{2}$ lin.

Thynnus fervidus. — Niger, clypeo, mandibulis scutelloque flavis, thorace rufo-vario, abdomine pedibusque rufis. (Mas.) Long. $6\frac{1}{2}$ lin.

Thynnus humilis. — Niger, cinereo-hirtellus mandibulis testaceis abdominis segmentis exoleto flavo-marginatis, secundo transversim bicarinato. (Fem.) Long. $3\frac{1}{3}$ lin.







PLATES LXXXIV, LXXXV, AND LXXXVI.

ILLUSTRATIONS OF SOME AFRICAN SPECIES OF LONGICORN BEETLES.

PREVIOUS to entering upon the descriptions of the species of Longicorn beetles, represented in the accompanying plates, it is proper to make the following observations, with reference to some of the other Longicorns figured in the three plates already devoted to that family in the present volume.

LAMIA OBESA.

(Plate 64, fig. 5.)

This insect, I am informed by M. C. Sommer, Esq., of Altona, is known in the continental collections under the name of *Phryneta Dregei*.—Klug MSS. As, however, no description of the insect had been published, it was impossible for me to have the least idea of its identity with my species, especially as it is given in Dejean's Catalogue as a native of the Cape of Good Hope. The characters of the genus *Phryneta* are given in the *Histoire Naturelle des Insectes Coléoptères* of the Count de Castelnau, vol. 2, p. 477.

LAMIA PALINII.

(Plate 74, fig. 2.)

This species appears to me to be identical with the *Lamia principalis* of Dalman. Schonh. Syn. Ins. 1., pt. 3, App. p. 162. Mr. Hope has recently received a specimen of it from Cape Palmas.

LAMIA COMES.

(Plate 78, fig. 1.)

Is identical with *Lamia cornutor* Fabr., the typical specimen of which, described by Fabricius, is still preserved in the Cabinet of the British Museum. It is a male—that represented in my plate being a female. The locality given by Fabricius of "America" is evidently erroneous, the group to which it belongs being confined to the African continent. M. Dupont is unfortunately unacquainted with the locality of his specimen, it being marked in his collection, Madagascar, with a point of doubt.

SYN. *Lamia cornutor*, Fabricius. S. Ent. p. 178. Ent. Syst. 1, pt. 2, p. 292. Olivier Entomol. 4. Ceraumb. pl. 17, p. 132.

LAMIA PRINCEPS.

(Plate 78, fig. 2.)

Is referred by M. Dupont to the genus *Zoographus* Dejean, described by Laporte de Castelnau in the Hist. Nat. Ins. Col. 2, p. 473; but without any notice of the structure of the sterna, which forms the chief character of the group.

LAMIA (STERNOTOMIS) NORRISII. Westw.

(Trans. Ent. Soc., vol. 1, p. 148, pl. xv. A. Plate 84, fig. 1, and details.)

L. supra opaca nigro-fuliginosa, clytris postice flavo-cinctis, antennis subtus pedibusque hirsutis opalina indutis.

Long. corp. unc. $1\frac{3}{4}$. Long. antenn. unc. $3\frac{3}{4}$ (art. ult. unc. $1\frac{1}{2}$).

Habitat apud Sierram Leonam. In Mus. D. Norris.

The head is black, with the sides behind the eyes of an opaline green colour; the antennæ are very long, 11-jointed, and black,

with the underside tinged with opaline green. The mandibles are large, and furnished with an angular tubercle near the base on the outside; they are black, with the disc opaline green, which is also the colour of the upper lip and palpi. The prothorax is black, with the disk irregular, being marked with two transverse impressions. The scutellum and elytra are black; the latter with the shoulders rather rounded (not obliquely truncate), and the outer margins beyond the middle coloured yellow, dilated towards the apex. The abdomen is golden-coloured above, and black beneath, except the two basal segments, which are yellow. The prosternum is rather prominent and dilated, sub-truncated, (fig. 1 *d*.) and the mesosternal process is also slightly prominent and rounded in front. The underside of the whole of the thorax is yellow; the legs are black, the upper side of an opaline green, and the under side of the coxæ and femora yellow.

Notwithstanding the great length of the antennæ, and especially of the last joint of those organs, in the unique specimen hitherto known of this species, indicating the male sex, the slight toothing of the mandibles, and moderate size of the sternal processes, are remarkable. (Fig. 1 *a*, the head, seen in front; 1 *b*, the same, sideways; 1 *c*, the thorax beneath.)

LAMIA (STERNOTOMIS) CRUX NIGRA. *Hope*.

(Trans. Zool. Soc. 1, p. 104, pl. xv. fig. 2. Plate 85, fig. 4.)

L. straminea; thorace nigro, vittis tribus luteis; elytris macula cruciformi nigra alterisque duabus rotundatis aurantiis.

Long. corp. lin. 11. Lat. 4.

Habitat in Sierra Leone, D. Palin. In Mus. D. Hope.

This lovely species has the antennæ very long, and 11-jointed, the terminal joint being but moderately elongated; they are black above, and light greenish grey beneath. The head is black, varied with luteous, and with two golden-coloured spots beneath the eyes. The thorax is black, with a golden-coloured spot on each side, and a central and two lateral luteous vittæ, the dorsal one being interrupted in front, and ending before the scutellum, which is concolorous. The elytra are pale straw-coloured, variegated with lemon and dark and light orange tints, and marked with a large black (St. Andrew's) cross, having two red and two pale buff spots. The body beneath is unicolorous; and the feet are black above, and grey beneath.

LAMIA (STERNOTOMIS) IMPERIALIS. *Fab.*

(Plate 86, fig. 3.)

L. thorace spinoso, ferrugineo villosa, viridi-fasciata; antennis longis atris, capite villosa ferrugineo obscure lineato, orbita oculorum viridi, thorace striga media impressa fasciæque postica viridi; elytris villosa ferrugineis fasciis duabus, anteriore recta, media e maculis tribus quadratis concatenatis, punctoque postico, viridibus; pedibus ferrugineis.

Syn. Lamia imperialis, Fabricius; *Syst. Eleuth.* 2, p. 286.

Cerambyx luteo-obscurus, Voet, *Col. Ed. Panz.* iii, p. 20. 19. tab. 7. f. 19.

Cerambyx ornatus, Olivier *Entomol. Ceramb.* pl. 4, fig. 24 c.

Lamia bifasciana, Fabr. *Ent. Syst.* 1, p. 281.

Fabricius suggests that this insect may be a possible variety (nuper declaratum) of his *L. regalis*; but that species is abundantly distinct, not only in its markings, but also in its longitudinally multi-striated elytra and the rounded humeral angles.

The Fabrician description abstracted above accords exactly with a specimen from Guinea, received by the Rev. F. W. Hope from Mr. Westermann, whose residence at Copenhagen enables him to determine the identity of those Fabrician species which were described, (as was the case with the one before us,) from the collection of M. Sehestedt. This specimen is represented in my pl. 86, fig. 3. It is a male, and has the mandibles armed with a strong, rather deflexed spine in front near the base, the outside of the mandibles being green, and the remainder black. The middle of the face and labrum are fulvous, the former with two rather broad green bars extending from the base of the antennæ to the mouth; the sides of the head behind the eyes are also green; there is a diamond-shaped fulvous patch on the middle of the crown, the hind part of the head being green; the prothorax is fulvous, with a slender green transverse fascia across the anterior part, and the hind part of the prothorax, including the spaces behind the lateral teeth, are also green. The humeral angles of the elytra are very prominent, and angularly truncate; the anterior green fascia is, as it were, divided into two parts by a slaty-green stripe, and the three green spots forming the central curved fascia are margined with dark slaty green; besides the spot in the middle of each elytron towards the extremity, there is a little green patch next the suture, which is itself also green. The feet are green, with the undersides more golden.

I possess two beautiful varieties of this species, one in which the green markings are of a bluer hue, and separated from each other by, or margined with, black lines; and the other in which the ground colour of the insect is of a browner fulvous colour, and the

green markings of a golden hue, destitute of the black or slate-coloured edges. The feet are also of a more golden fulvous colour. Both are females. The latter of these specimens was presented to me by J. A. Turner, Esq., of Manchester.

The Fabrician *L. bifasciata*, described from the British Museum cabinet, is identical with *L. imperialis*. The locality of Jamaica must therefore be considered as erroneous.

LAMIA (STERNOTOMIS) MIRABILIS.

(Plate 86, fig. 5.)

L. thorace spinoso, nigra, elytris antice fasciis duabus, postice punctis, (8 vel 9 in singulo) viridibus, elytris basi mucronatis.

Long. corp. lin. 9—11.

Habitat the Gold Coast, Afr. tropic occident.

SYN. *Cerambyx mirabilis*, Drury Ill. vol. 2, pl. 31, fig. 1. and Append. vol. 2.

Cerambyx pulcher, Fabr. Ent. Syst. 1, pt. 2, p. 269. Syst. Eleuth. 2 p. 285. Schöenherr. Syn. Ins. 1, part 3, p. 372. Olivier Entomol. Ceramb. pl. 22, fig. 167.

Sternodonta prasina, Hope MSS.

This handsome species is varied with black and sericeous green or golden green colours, the latter forming very distinct marks. The face is green, marked on each side with an oblique black line from the base of the antennæ to the base of the mandibles; there is also a black line extending from the under side of the eyes to the sides of the mouth; and also a narrow green fascia across the crown of the head. The thorax is marked with three green transverse fasciæ, the middle one being the broadest and curved, there being an additional slender abbreviated green fascia within the open space formed by this curve; there are also two green spots behind the lateral teeth of the prothorax. The elytra are marked at the base with a transverse green fascia, behind which is a rather broader and more oblique one, slightly interrupted near the lateral margins, and followed by about nine equi-distant and nearly equal sized green patches, of which the two anterior and lateral, and the two apical ones are sometimes more or less confluent; the hinder ones being more or less irregular. The male (represented in the plate) differs from the female, in having a much broader head, large dentated mandibles, and longer antennæ, the tips of the joints being more nodose.

LAMIA (STERNOTOMIS) PULCHRA.

L. nigra thorace transverse fulvo trifasciato; elytris fulvo maculatis et variegatis maculis interdum viridi cinctis.

SYN. *Cerambyx pulcher*, Drury Ill. vol. 1, pl. 32, f. 6, App. C., vol. 2; nec *Lamia pulchra*, Fabr.

Lamia blanda, Schöenh. Syn. Ins. 1, iii., p. 373.

Although Drury gives Jamaica as the habitat of this species, there can, I apprehend, be very little doubt of its being a native of Tropical Africa. He describes it thus:—

“Head orange-coloured, encircled with black stripes; antennæ black, being a little longer than the insect; thorax orange-coloured, encircled with black rings, having a single spine on each side; elytra with orange-coloured clouds and spots on them separated by black partitions, some being margined with green; abdomen orange-coloured, the middle being dirty green; femora simple, dark green; tibiæ the same.” From Drury’s figure it appears very closely allied to *L. mirabilis* and *ornata*, if, indeed, it be not a local variety of those insects.

LAMIA (STERNOTOMIS) ORNATA.

L. nigra fasciis maculisque fulvo-aureis; capitis thoracis et elytrorum margine posteriori, parteque femorum superiore, viridi nitentibus.

SYN. *L. ornata*, Olivier Entomol. Ceramb., pl. 4, f. 24 a; Pal. Beauv., pl. 37, f. 1.

An Ceramb. pulcher, Drury?

The description given by Olivier of his *L. ornata* from Africa, is as follows, and very nearly accords with the figure given by Drury of the preceding insect:—

“*Cer. regalis affinis. Corpus nigrum pulvere fulvo-aurato, fere omnino tectum. Mandibulæ magnæ exsertæ, basi et antè dente valido armatæ, apice nigræ basi rufæ medio virides. Lineis duabus nigris ab oculis ad mandibulas. Oculi viridè circumscripti præcipue postice. Thorax rufus, postice ad latera viridis fasciis duabus nigris. Elytra rufa fasciis nigris numerosis anastomosantibus viridi marginatis. Apex elytrorum et sutura postice viridia. Corpus infra rufum carina abdominalis et pars superior femorum virides, apophysis trapezoidalis (prosternum) inter pedes anteriores.*”

The Rev. F. W. Hope possesses an old faded specimen from Lee’s Cabinet, labelled *L. pulchra*, which agrees with Olivier’s description and figure 24 a, and which might be regarded as a specimen of *L. mirabilis*, in which nearly the whole of the green markings had assumed a fulvous hue.

The insect represented in Plate 84, fig. 2 (not being in a fully developed state), from the collection of M. Chevrolat, of Paris, is regarded by that entomologist as a variety of *L. ornata*, in which the fulvous colour of the type is replaced by pale buff, or straw colour, and the black interstices are tinged with blue instead of green. The body beneath is greatly varied with pale and dark

buff, and with blue and black colours. The markings of the elytra may be traced to those of *L. ornata* and its immediate allies, the second fascia being more attenuated and interrupted than usual, and the intermediate patches rather smaller than ordinary. It was brought from Pauz Oasis by M. Cailleaux.

The insect represented in Plate 86, fig. 2, from the collection of the late A. H. Haworth, Esq., appears to me to be another fine variety of *L. ornata*, having the thorax and markings on the elytra very pale buff; and the sides of the former, behind the lateral spines, and the ground colour of the latter, of a bluish-green colour; the dark stripes separating the fasciæ at the base of the elytra being much reduced in breadth. The specimen is a male, having the mandibles dentated at the base, as in the other allied insects.

It appears also probable that the *Cerambyx marmoratus* of Voet Coleopt. Ed. Panz. 3, p. 21, 20, pl. 7, fig. 20 (*Lamia venditaria*, Sch. Syn. Ins. 1, pt. 3, p. 373), the locality of which was unknown, is another variety of *L. ornata*. It is represented as of a fulvous colour; the thorax banded with black, and varied with greenish at the sides, behind the lateral spines, and with the elytra varied with numerous irregular black markings.

·*LAMIA (STERNOTOMIS) AMABILIS*, *Hope MS.*

(Plate 86, fig. 4.)

L. humeris clytrorum angulato-truncatis, nigra viridi fulvoque tomentoso ornata; thorace rufo-fulvo, postice viridi; elytris fasciis maculisque rufo-fulvis argenteo-viridibusque notatis.
Long corp. lin. 11.

Habitat Ashantec. In Mus. D. Hope.

This highly beautiful insect is most probably but one of the varieties of the type of the genus which is distinguished by the angulated shoulders of the elytra, all of which (including several of the following insects) will ultimately, in all probability, be determined to constitute one extremely variable species, the local varieties of which preserve an uniformity in the distribution of their colours. Thus, *L. chrysopras*, from Aquapim, has the general colour dark fulvous, with a single green patch on the elytra, and the other dark markings almost obliterated; *L. ornata*, in like manner, has but very little green colour visible; whilst *L. mirabilis* is entirely green and black. The chief characteristic of all these varieties seems to be the three spots on the middle of each elytron, arranged somewhat in a triangle; and

these we find also in *L. imperialis* and even in *L. aper*, in which the basal fasciæ are but indistinctly marked.

The male of the insect now before us has the face fulvous-red in the middle, with the lateral and hind parts, and the labrum, green; the prothorax is fulvous-red in front, and silvery-green behind, the former part with three black, slender, transverse fasciæ, the third being curved. The basal fascia of the elytra is green; the next one (interrupted near the sides) is also green, but varied with fulvous; the third is broad, lateral, and fulvous; the three central oval patches are distinct, the inner one green, and the two outside ones fulvous; the suture beyond these is also marked with two silver-green patches, placed consecutively, the second communicating with a small subapical angulated fulvous-green spot, which is preceded by a large fulvous patch; the spaces between the fulvous lateral patches are also tinged with green; the femora and underside of the body are also green; the middle of the abdomen with a row of black spots.

The female is much more strongly marked with fulvous-red colour, especially at the sides of the elytra, which are almost concolorous, the green being here restricted to the base and middle portion of the suture; but all the markings are in their ordinary position.

• *LAMIA (STERNOTOMIS) FERRETI*, *Reiche MS.*

(Plate 85, fig. 1.)

L. grisea, thorace et elytrorum basi luteo fasciatis, his postice luteo-maculatis. Long. corp. lin. 14. ♂—11 ♀.

Habitat. in Abyssinia. In Mus. Reiche et Hope.

This insect entirely agrees in its general characters with *L. ornata* and its allies, but is distinguished by its Eastern locality and peculiar coloration. The face is black with a dirty fulvous stripe down the middle, and an oblique one on each side, extending to the base of the mandibles, which are armed with a large obtuse tooth at the base in front. The labrum is fulvous, as is also the crown of the head, the hind part of which is black. The thorax is of an ashy leaden colour, with the anterior margin, transverse curved fascia across the middle, and a subapical fascia, of a dirty fulvous colour. The elytra are of the same ashy leaden colour, rough at the base, where they are marked with a rather broad dirty fulvous fascia, followed by a narrower one (interrupted near the sides), and behind this are about nine patches of the same fulvous colour. The

mesosternum is also fulvous, with a broad oblique greenish blue stripe on each side, and the abdomen is black, with a fulvous patch on each side.

LAMIA (STERNOTOMIS) TARGAVEI, *Reiche MS.*

(Plate 85, fig. 2.)

L. nigra prothorace fulvo nigroque fasciato, postice viridi, elytris basi fulvo bifasciatis, postice maculis 7 fulvis alterisque duabus subapicalibus viridibus. Long. corp. lin. $8\frac{1}{2}$.

Habitat in Guinea. In Mus. D. Reiche, D. Targeau.

In all important respects this insect agrees with *L. mirabilis*, except that the thorax (except the hind part) and the major part of the markings of the elytra are fulvous. The face is black, with an elongate conical fulvous patch down the middle, extending upwards and between the antennæ at the base, the labrum and extremity of the clypeus being green. The eyes are margined before and behind with green, the front margin dilated below into an orange green oblique patch extending to the base of the mandibles, which are slightly cornuted near the base in front, and orange green at the sides of the base. The head above is marked with a fulvous patch in the middle of the crown, and the hind part is dark green. The prothorax is fulvous in front with three black stripes, and the hind part is silvery green. The elytra are black, the humeral angles and apical part irrorated with green, which is also the colour of the two subapical spots; the two basal fasciæ and the other spots, seven or eight in number, being dark fulvous. The mesosternum is marked with an orange patch at the side, and the metasternum is green in the middle, changing to fulvous at the sides, each side marked with a black streak; the abdomen is black, each segment with a large transverse orange green patch on each side.

LAMIA (STERNOTOMIS) BOHEMANNI, *Chevrolat MS.*

(Plate 85, fig. 3.)

L. humeris elytrorum angulato-truncatis; supra viridis maculis fasciisque ferrugineis (marginibus pallidioribus) notata. Long. corp. lin. 11.

Habitat Port Natal, Africa Austral. In Mus. D. Chevrolat et Parry.

This insect is most remarkable for its locality, showing that this group of insects enjoys a very wide geographical range in the African continent. The upper surface of the body is of a dark opaque green colour, varied with ferruginous fasciæ, and spots arranged as in the allied species; the edges of which being of a rather lighter testaceous colour, give a varied appearance to the

insect. The face is black, except a conical slender fulvous line down the centre, broadest next the labrum, which has the front also fulvous. The mandibles are large, with a moderate sized deflexed acute spine in front at the side of the base. The head above has a ferruginous streak behind the eyes. The front margin of the prothorax, a broader central fascia, and a slender subapical one interrupted in the centre, are of a ferruginous colour, as are also the two basal fasciæ, and about nine spots on each elytra occasionally partially confluent, the apical one acutely angulated. The metasternum is fulvous, with two green spots at each side, and the abdomen is fulvous, with the sides green and centre black.

LAMIA (STERNOTOMIS) CHRYSOPRAS.

(Plate 86, fig. 1.)

L. fulva, lateribus prothoracis (pone medium) scutello femoribus guttisque duabus suturalibus elytrorum argenteo-viridibus, his obscurius fasciatis. Long. corp. lin. 12.

Habitat. Aquapim, Guinea. In Mus. Hope, &c.

SYN. *Cerambyx chrysopras*, Voet Coleopt. Ed. Panz. 3, p. 21, 22, tab. 9, fig. 22. Schonh. Syn. 1, pt. 3, p. 373.

Sternodonta Robillardii, Dupont MSS.—Dej. Catal. 2nd Ed. p. 342.

Although this insect appears at first sight so entirely distinct from the preceding species, I must confess it is with doubt that I retain it as distinct, for although the prevailing colour is fulvous, yet in various parts we see little touches of silvery green, indicating the more ordinary dispositions of that colour. The elytra also, when examined, are found to have the black or green markings of the preceding species clearly distinguishable, although so thickly irrorated with fulvous as at first sight to appear merely as indistinct cloudings over the elytra. The body beneath is elegantly varied with fulvous and silvery green.

LAMIA (STERNOTOMIS) DUCALIS.

(Plate 85, fig. 5.)

L. nigra thorace lateribus virescentibus, posticeque subluteis; elytris postice attenuatis lutescentibus, nebulis virescentibus apicibusque nigris. Long. corp. lin. 12.

Habitat in Gambia. In Mus. Dupont.

SYN. *Lamia ducalis*, Klug, in Erman's Reise, tab. xvi., f. 4.

Sternotomis aper, Percheron Gen. des Insectes Col., pl. 16.

The face is black, and both the labrum and base of the mandibles, and a triangular patch on the clypeus (bearing an interrupted, slender, black, median line), fulvous, and with two fine short green lines between the eyes. The head above is dirty buff, with the hind part black; the prothorax is black and shining in front, with a green tinge at the sides, behind the lateral spines,

and the hind part dirty buff. The elytra are considerably attenuated towards the apex; they are of a dirty fulvous colour, slightly varied with greenish, which colour forms an oblique fascia towards the base, and two or three obscure ocellated markings across the middle, placed obliquely, the apex of the elytra being black. The legs are greenish-black, with the tibiæ and tarsi dirty buff and green; the sides of the metasternum are marked with a large patch of bright fulvous scales, extending in front to the hind edge of the sternal process; the sides of the abdomen are also marked beneath with a sericeous-green patch.

LAMIA (STERNOTOMIS?) NIVEISPARSA, *Chevr. MS.*

(Plate 84, fig. 5.)

L. nigra, albo farinosa; thorace fasciis 6 transversis niveis; elytris niveo-punctato-striatis maculisque quatuor niveis, tertia majori.

Long corp. lin. 10.

Habitat Port Natal. D. Bohemann. In Mus. Chevrolat.

The head is of moderate size, with the mandibles small, and not crossing each other at the tip; the face is white, with slender black lines, which extend upwards between the antennæ; the hind part of the head above is black. The prothorax is black, with six slender, white, powdery, transverse fasciæ, the fifth of which is abbreviated, in consequence of the curved raised part of the prothorax extending between the lateral spines; the elytra are rounded at the humeral angles, and the disc is covered with a number of longitudinal striæ, formed of small oblong white dots, in addition to which each is marked with four white spots: the first is round, and at the base in the middle; the second is also round, and at the side about one-third of the length of the elytra from the base; the third is large and round, being placed nearly in the middle of the elytra; and the fourth is subtrilobed, and placed near the extremity. The legs are black, covered with white powder; the thighs black at the tips; the body beneath is covered with white powder; the sternal processes are of comparatively small size (fig. 5 a).

This species agrees with *Lamia regalis*, Fabr., in the simple humeral angles and punctate-striate disc of the elytra, as well as in the comparative smallness of the sternal processes, and the spots of the elytra. In several of these respects, indeed, it approaches the sub-genus *Zoographus*, with which it appears to form the connecting link.

LAMIA (ZOOGRAPHIA) IRRORATA.

(Plate 84, fig. 4.)

L. thorace spinoso fusco ferrugineoque vario; elytris nigris ferrugineo irroratis; antennis cinerascensibus, pedibus griseo luteo nigroque variegatis. Long. corp. ♂ lin. 18.

Habitat in Sierra Leone. Mus. Hope et Reg. Paris.

SYN. *Lamia irrorata*, Fabricius, Ent. Syst. 1, pt. 2, p. 270; S. Eleuth., 2, p. 286; Schonh. Syn. Ins., 1, pt. 3, p. 373.

Cerambyx nebulosus, Voet Coleopt. Ed. Panz., 3, p. 20, 18, tab. 7, f. 18.

This species is black, clothed with a greyish powder, and thickly irrorated with dirty fulvous dots. On the crown of the head are two small triangular dark patches, and the hind margin of the head is black; the mandibles of the male are small, black, and unarmed; the disc of the prothorax is rugose and grey, with numerous small dirty fulvous marks; the elytra are closely covered with minute punctures, and numerous irregular small fulvous dots, in addition to which each is marked with the three ordinary, slightly elevated, polished, black, longitudinal lineolæ; the legs and underside of the thorax are variegated with luteous black and grey; and the abdomen is grey, with the centre black, each segment, except the last, being marked on each side with a small fulvous patch.

LAMIA (TRAGOCEPHALA?) GLAUCINA, Dej.

L. obscure fusca opaca; thorace striga lata media maculisque duabus lateralibus; elytrisquo (plaga magna basali triangulari excepta) pallide flavescentibus. Long corp. lin. 13½.

Habitat ———? In Mus. Chevrolat (olim Olivierii).

This pretty species is nearly allied to *Lamia angulata* of Olivier, and *L. bicolor* (W. ante, pl. 78, fig. 4). It is on this account that I presume it to be an African species, differing chiefly from the last-named insect in its less robust form and shorter antennæ, which might indicate it to be the female of that species; but the pale markings on the thorax, and the large triangular dark patch on the base of the elytra, must, I conceive, be regarded as indicating a distinct species. The general colour is opaque dark blackish-brown; the markings on the thorax and the elytra (except the basal patch and the small lateral streaks) are of a very pale yellow colour, having a greenish tinge.

Obs. *Lamia humeralis*, Fabricius, Ent. Syst., 1, part 2, p. 281, appears also to belong to the sub-genus *Sternotomis*.

The plant represented in Plate 85 is *Iris pavonia*, and that in Plate 86 is *Trichonema roseum*, both from Southern Africa.

I take the opportunity of a spare page to mention a work now in course of publication in France, especially worthy of the attention of English Coleopterists, the title of which is as follows :—

HISTOIRE NATURELLE DES COLÉOPTÈRES DE FRANCE. Par M. E. MULSANT. 8vo.
1839—1844, with Plates.

LIVRAISON 1. LONGICORNES (1839), pp. 304, 3 pl.

„ 2. LAMELLICORNES (1842), pp. 623, 3 pl.

„ 3. PALPICORNES (1844), pp. 196, 1 pl.

This work is one of the most carefully executed productions hitherto published in France upon the insect tribes. Unlike the majority of entomologists, the author has not confined himself to giving very detailed descriptions of the insects in their perfect state, and to the difficult unravelment of their synonymy, but has investigated their structure with great minuteness and precision, and has especially studied their preparatory state, sexual distinctions, and specific variations, whereby he has considerably reduced the number of supposed species. Such a work, from an author residing far from the French metropolis, and accordingly free from those incitements to increase the number of species (which it is to be feared is one of the results of rivalry in Natural History), and exercising his talents upon the insects of his locality, may be well conceived to be a production of real zeal for the science—a true labour of love. The plates are drawn and engraved with great delicacy, although it may be objected that the anatomical details are too small. It will be sufficient, in order to afford an idea of this work, to give the following abstract of the last *livraison*. After an introduction of 23 pages, the author divides the Palpicornes into two groups—the Hydrophilides and Geophilides :—

1. HYDROPHILIDES.

FAM. 1. Sperchéens. 1 G. *Spercheus*. 1 Sp.

FAM. 2. Helophoriens. 2 G. *Helophorus*. 8 Sp. 3 G. *Hydrochus*. 5 Sp. 4 G. *Ochthebius*. 11 Sp. (including the *Enicoceri*.) 5 G. *Hydræna*. 7 Sp.

FAM. 3. Hydrophiliens. 6 G. *Limnebius*. 4 Sp. 7 G. *Berosus*. 4 Sp. 8 G. *Hydrophilus*. 1 Sp. 9 G. *Hydrous*. 2 Sp. 10 G. *Hydrobius*. 3 Sp. 11 G. *Laccobius*. 1 Sp. 12 G. *Helophilus*, n. g. 1 Sp. (*H. lividus*.) 13 G. *Philhydrus*. 2 Sp. 14 G. *Cyllidium*. Erichs. 1 Sp.

2. GEOPHILIDES.

FAM. UNICA. Spheridiens. 1 G. *Cyclonotum*. 1 Sp. 2 G. *Spharidium*. 2 Sp. 3 G. *Cercyon*. 15 Sp. 4 G. *Pelosoma*, n. g. 1 n. Sp. 5 G. *Megasternum*, n. g. 1 Sp. 6 G. *boletophagum*, Steph. 6 G. *Cryptopleurum*, n. g. 1 Sp. *Sph. atomarium*, F.

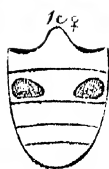
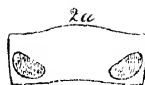
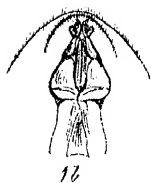


PLATE LXXXVII.

ILLUSTRATIONS OF FOUR SPECIES OF THE GENUS CHIROSCELIS.

CHIROSCELIS, LAMARCK, ANN. D. MUS. III., p. 260.

THIS genus was established for the reception of an insect respecting whose native country there is some doubt, Lamarek stating, "Ce coléoptère habite vraisemblablement dans la Nouvelle Hollande, car il se trouvait parmi ceux de cette contrée que le Capitaine Baudin a envoyés par le vaisseau le Naturaliste;" and Latreille states of it, "Habitat in Australasia; insula Sta. Maria, Dom. Peron, Lesueur," adding (Gen. Cr. ii. 144), "Speciem alteram priori fere similem at paulo minorem et maculis abdominalibus nullis ex Africa attulit Peron." Lamarck's insect is stated by him to have been "un peu plus de 4 centimètres (un pouce et demi) de longueur," and his figure "de la grandeur naturelle," represents an insect 20 lines long. On this account, and especially as a species of the genus has now been detected in the south-east part of Africa, it is probable that Lamarck's species is distinct from the following:—

CHIROSCELIS DIGITATA, Fabr.

(Plate 87, fig. 1. ♂.)

C. nigra nitida elytris parallelis, tibiis posticis inermibus, maculis abdominalibus subovatis.
Long. corp. lin. 18.

Habitat in Guinea, Sierra Leone, &c. Mus. Westw., &c.

SYN. *Tenebrio digitatus*, Fabr., Syst. Eleuth. 1, p. 145. (Excl. Syn. T. fossor, in Mus. Banks, quod ad genus Zabrum revocandum.)

Klug in Erman's Reise, t. 15, fig. 11. (Long. corp. lin. 15½.) Guérin Icon. R. An. Ins. Pl. 30, t. 5.

Ample details of the structure of this species are given in my paper on the African Tenebrionidæ, published in the third volume of the Transactions of the Zoological Society; in addition to which, it is to be observed that a dissection of both kinds of individuals of this species—namely, those possessing and those destitute of the luteous sericeous patches on the underside of the second segment of the abdomen, has proved that the suggestions which I made in my Introduction to the Modern Classification of Insects, vol. i. p. 320, 322, as to the sexual distinctions of these individuals (founded on their analogy with other Melasomata) were correct, the specimens destitute of the patches being males; one of these individuals is represented in fig. 1; fig. 1 a, being the figure of the underside of the abdomen; and fig. 1 b, the male sexual

organs *in situ*; whilst fig. 1 c, represents the underside of the abdomen of the female.

CHIROSCELIS BIFENESTRELLA, *Westw.*

Transactions of the Zoological Society, vol. iii. p. 209, Plate xiv. figure 2.

(Plate 87, fig. 3, 3 a.)

C. nigra nitida capite parum rugoso, mandibulis minus dentatis quam in præcedenti, elytris parallelis, abdominis maculis duabus minutis rotundatis, margineque antico pronoti haud puncto notato, tibiis 4-posticis fere rectis, apicibus intermediarum subdilatis. Long. corp. lin. 14.

Habitat in Guinea. Mus. Nost. D. Raddon.

CHIROSCELIS AUSTRALIS, *Westw.*

(Plate 87, fig. 2, 2 a.)

C. nigra nitida; capite supra rugoso (vertice sub-trituberculato) prothorace lato postice punctis duobus fere ad angulos posticos impresso, elytris elongato-ovatis punctato-striatis, tibiis anticis palmatis, posticis 4-subrectis simplicibus, abdominis maculis duabus ventralibus fere semicircularibus, femoribus anticis spina basali alterisque duabus subapicalibus. Long. corp. fere unc. 2.

Habitat in Africae Orient-Australis partibus interioribus. In Mus. D. Melly.

This fine addition to the genus is unique in the collection of A. Melly, Esq., to whom I am indebted for an opportunity of presenting a figure and description of it to the entomologist.

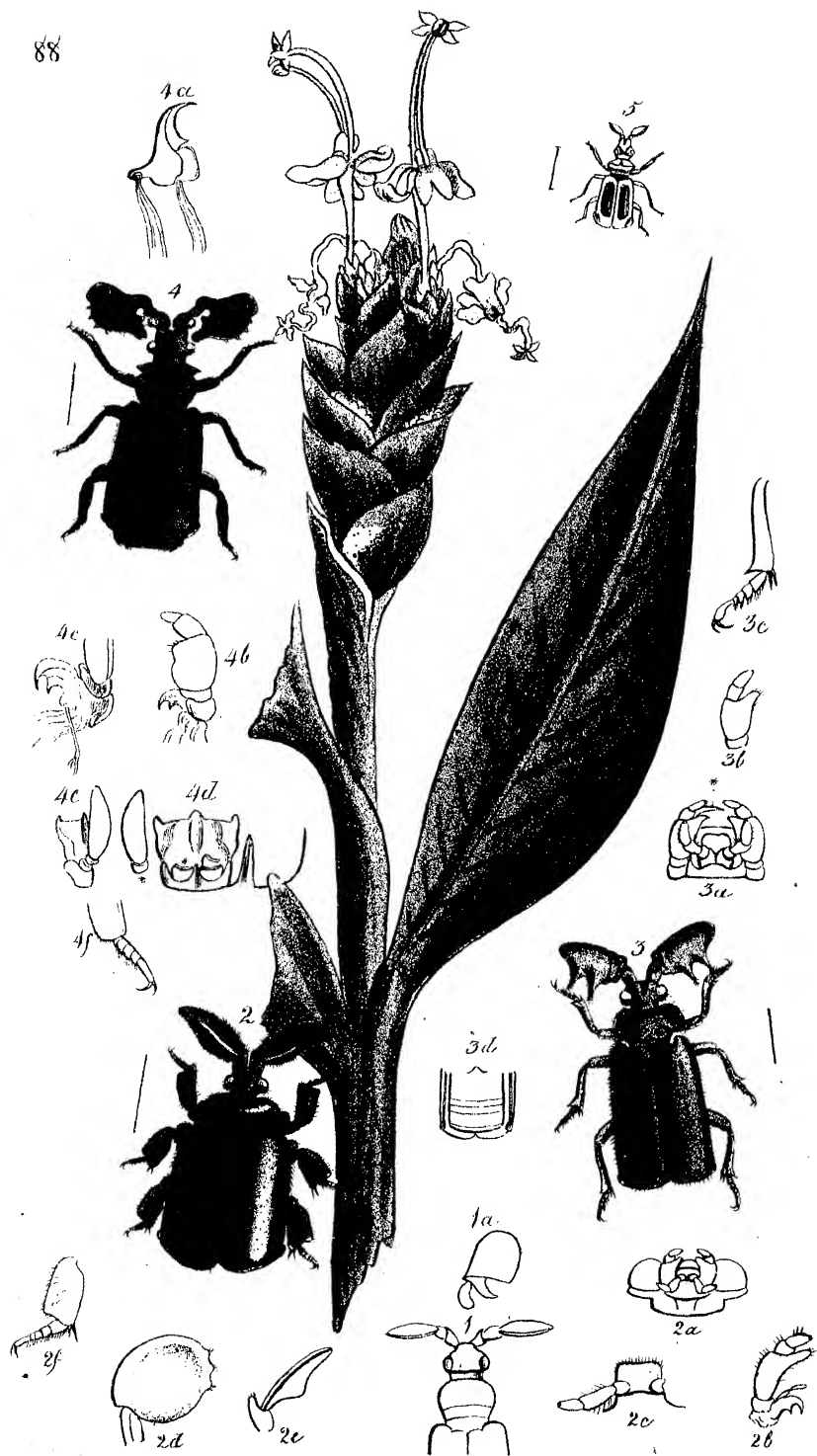
CHIROSCELIS PASSALOIDES, *Westw.*

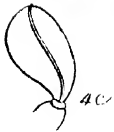
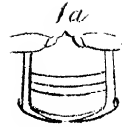
Transactions of the Zoological Society, vol. iii. p. 210, Plate 14, figure 3.

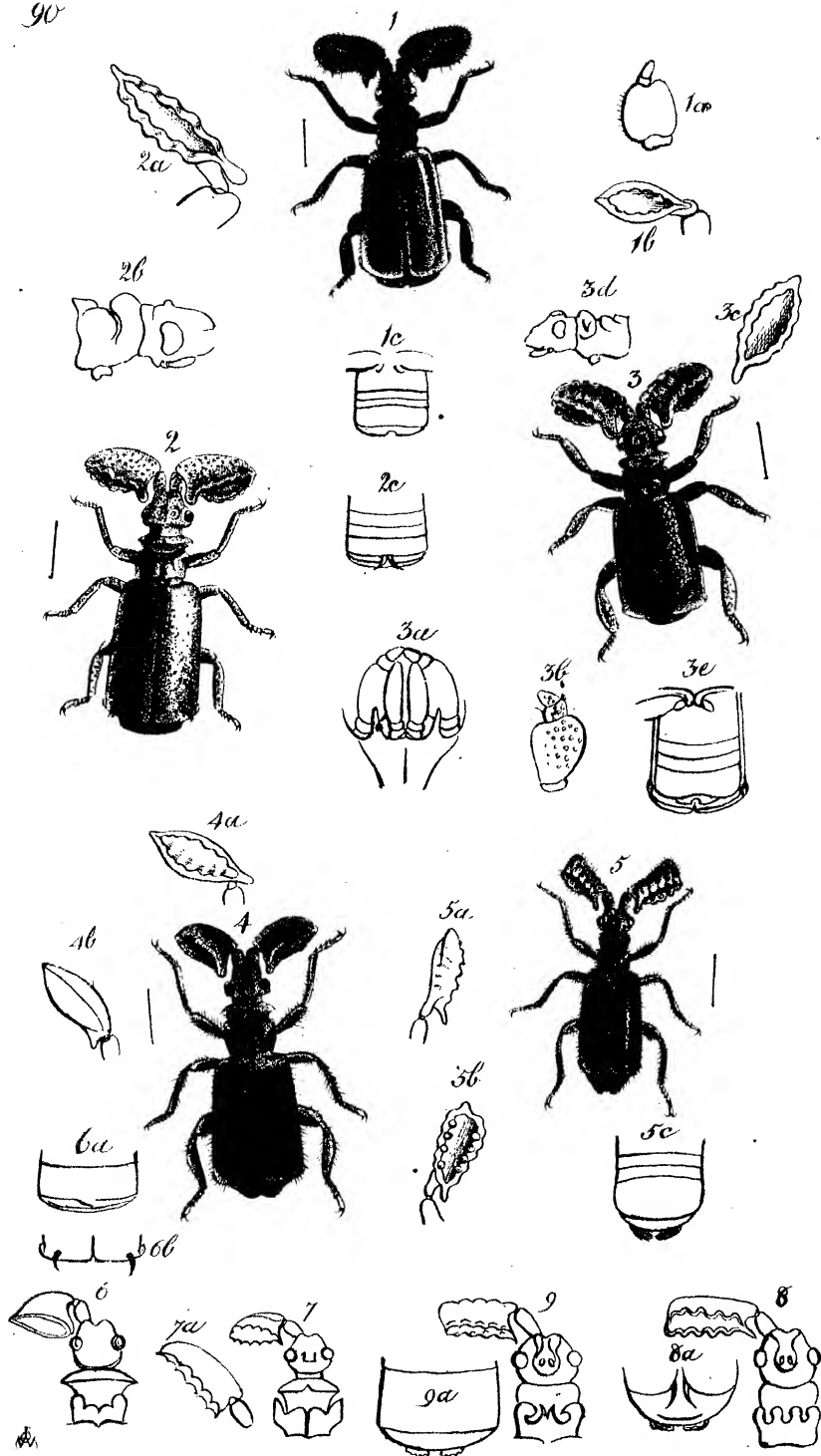
C. nigra nitida; vertice trituberculato, tuberculo postico majori, antennis crassis, pronoto sub-quadrato angulis rotundatis; elytris parallelis striatis; tibiis latissimis planis anticis extus serratis, posticis intus versus apicem dente armatis; abdomine subtus macula nulla instructo. Long. corp. lin. $19\frac{1}{2}$ — $20\frac{3}{4}$.

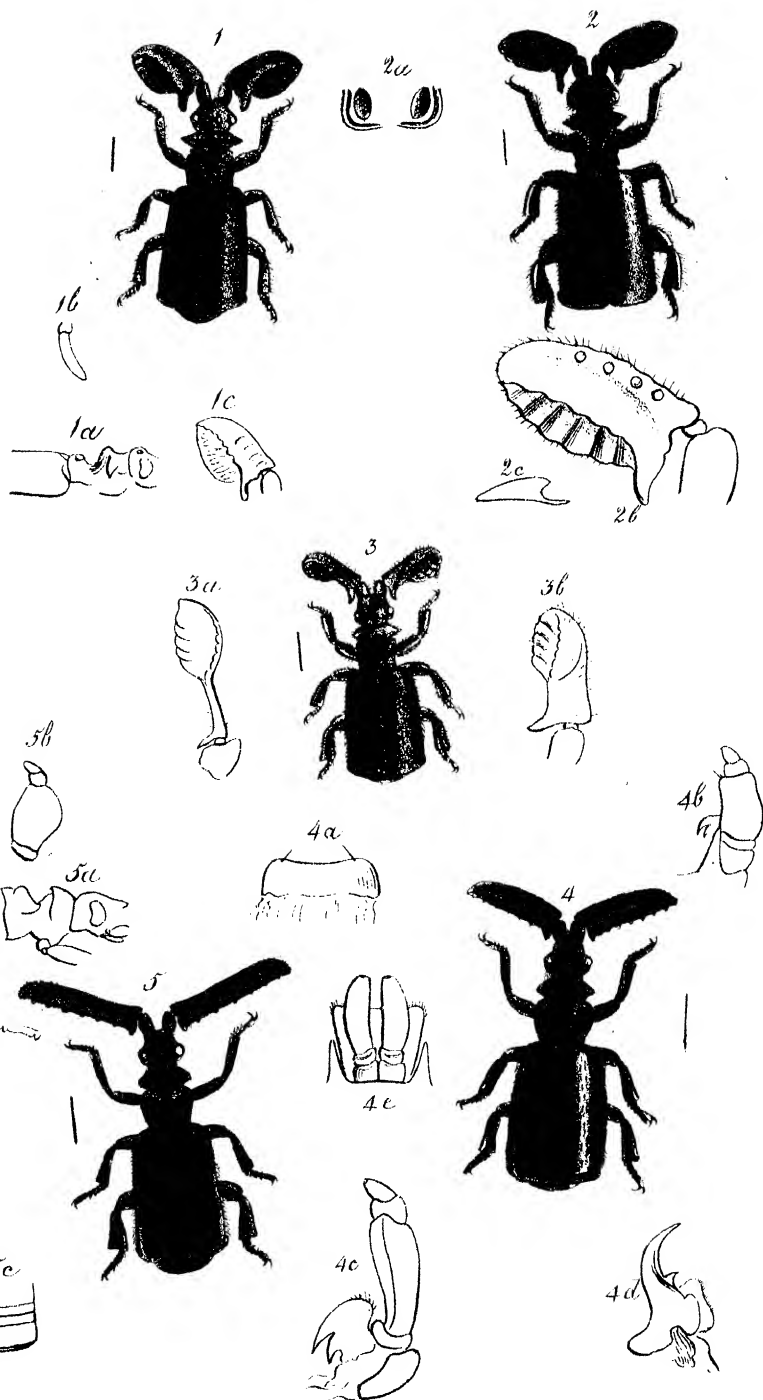
Habitat in Guinea. Mus. Nostr. &c. D. Raddon et Savage.

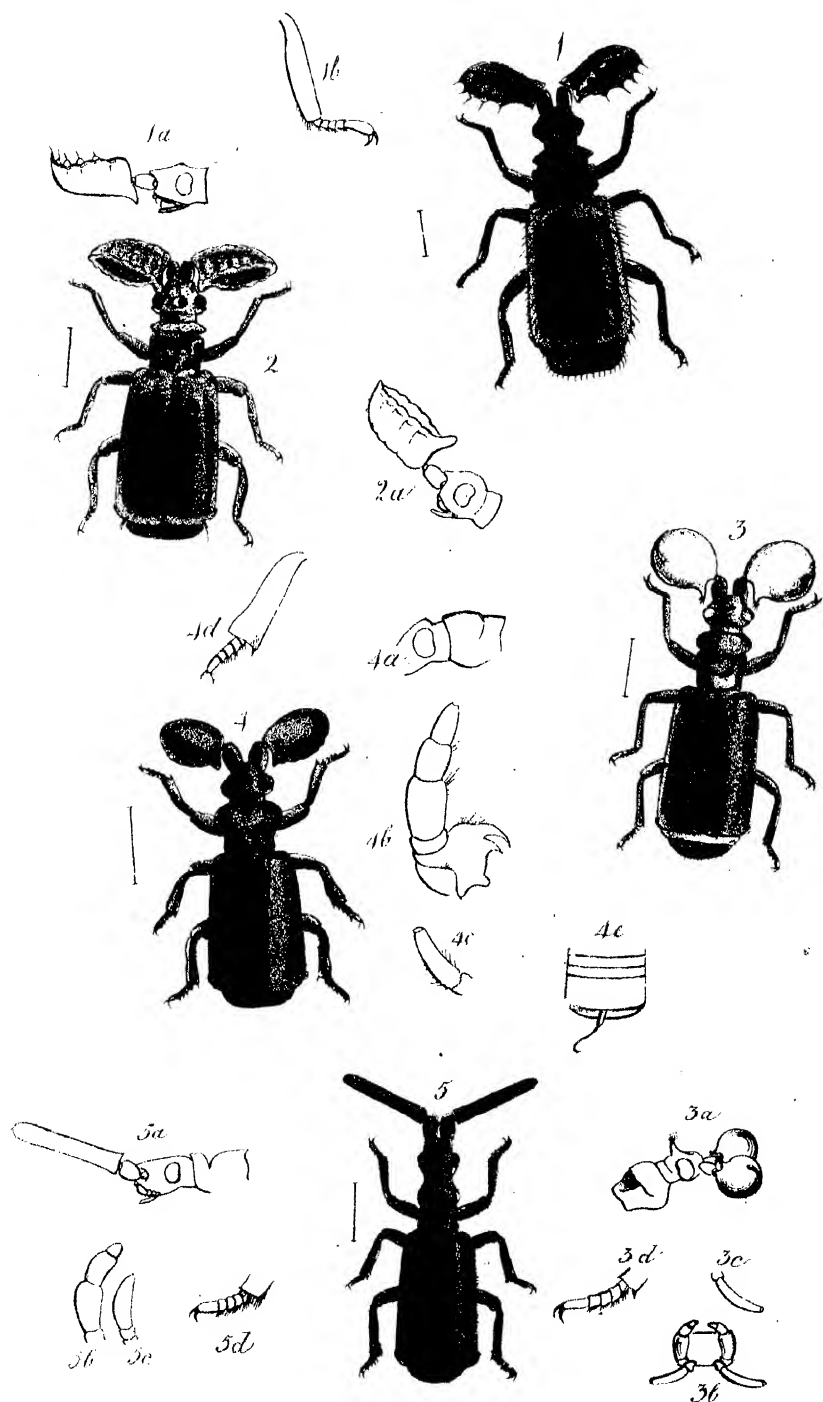
The plant represented in the plate is the *Stapelia divaricata* from Southern Africa.

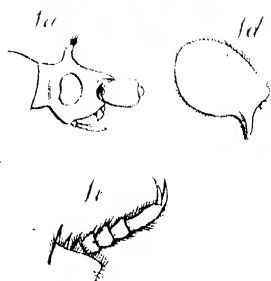
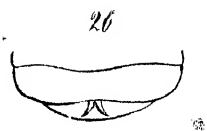


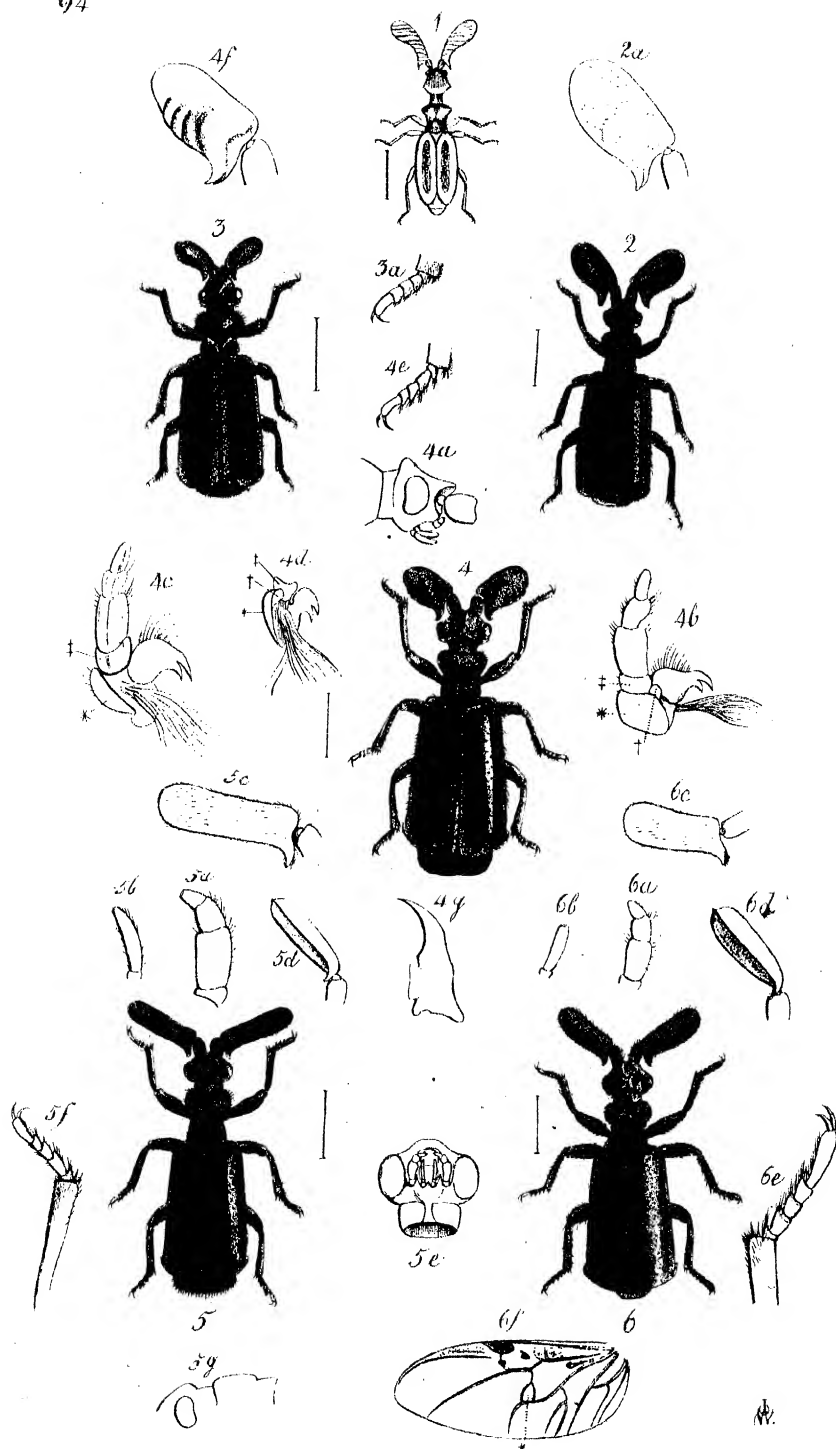


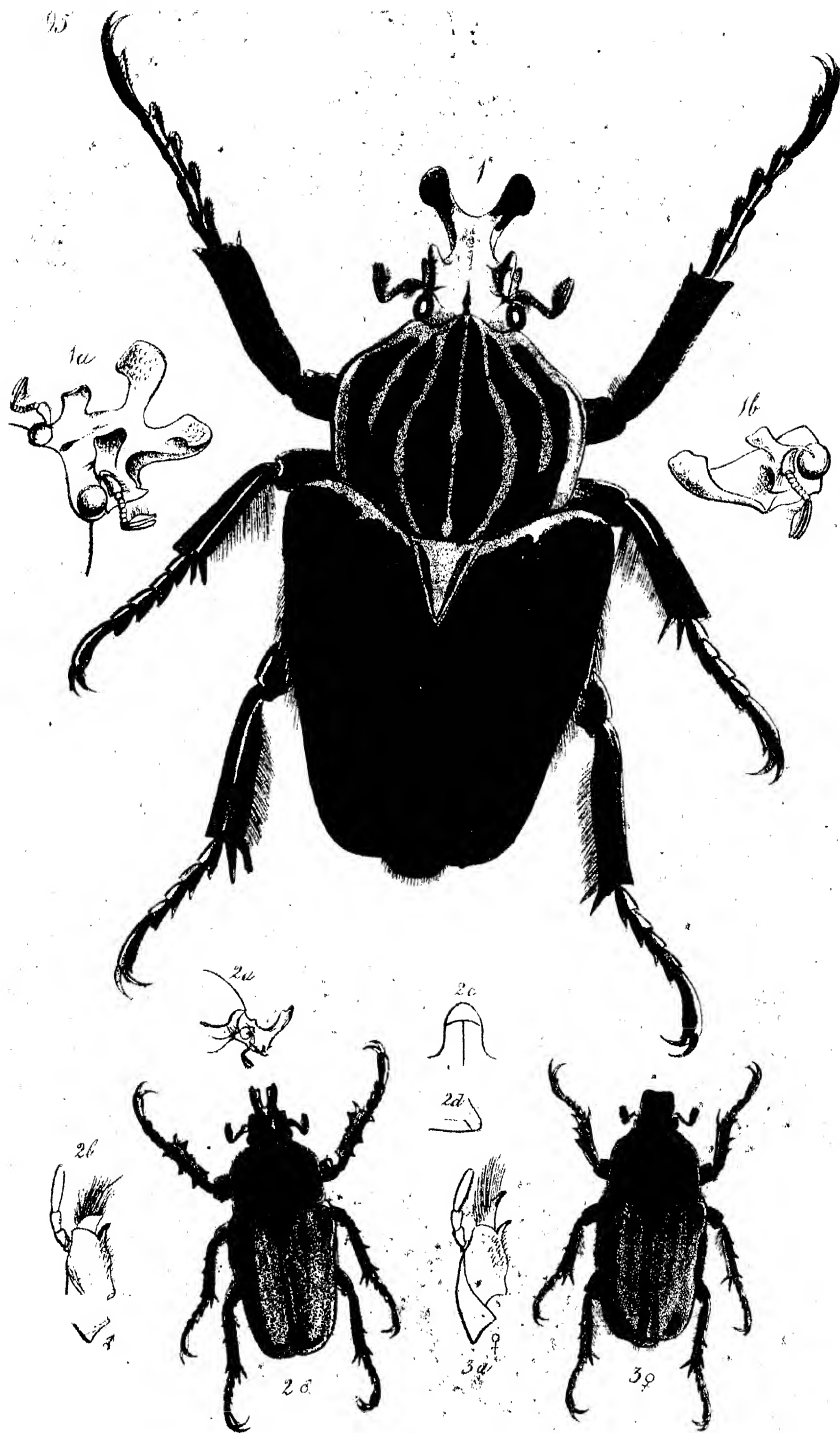












PLATES LXXXVIII.—XCV.

MONOGRAPH OF THE COLEOPTEROUS FAMILY PAUSSIDÆ.

PART IV.

GENUS PLATYRHOPALUS *Continued.*

SINCE the third part of this monograph was published (*ante*, p. 73), I have obtained a knowledge of Captain Boys' very interesting memoir on the species of this family captured by himself in India, published in the 'Journal of the Asiatic Society of Bengal' (n. ser., No. 54); in which that gentleman has given the following description of a species of *Platyrhopalus* which appears to be closely allied to *P. acutideus*.

SPECIES VI?—*PLATYRHOPALUS SUTURALIS*, *Westw.*

"No. 2, Fig. 2. Mhow. July 17, 1839.—Genus *Paussus*. Length, 6-20th of an inch; body brown, rather deeper in colour near the sutural margin of the elytra; antennæ of two joints, the last having an elongated pedicle resembling an intermediate joint; the club is pear-shaped when viewed from above, irregular if seen in flank; edges compressed, forming a carina, which is produced into a small tooth near the basal angle. Head has the front slightly emarginated in front and rounded, narrower than the thorax, from which it is exserted; eye rather large for the insect, rounded when seen from above, reniform when viewed on the side. Thorax cordiform, broadly truncated posteriorly, having a transverse sinus crossing its centre. Elytra narrowed anteriorly, rounded on the posterior external margin, squared on the internal one; abdomen tumid and very like many of the *Carabici* I have been lately taking. Tarsi of five joints, the first of the posterior tarsus scarcely discernible unless the foot is put in motion; last joint longest; all of them cylindrical or obconical, and furnished with a few hairs beneath.

"*Note.* This insect came to the lights on the table some time after gunfire last night."

From the structure of the antennæ and prothorax, as represented in Capt. Boys' figure (copied in my Plate 88, 1, 1*a*), I infer that this insect belongs to the present genus; although the want of details and the description of the tarsi render this opinion doubtful.

The specific name proposed above is therefore for the present merely provisional.

Having, however, received information from Captain Boys of his having been so kind as to forward to me a number of species of this family from India, I trust to be enabled in the following number of this work to give coloured figures of this and other apparently new species described in his paper above referred to.*

SPECIES VII.—*PLATYRHOPALUS MELLII*. *Westw.*

(Plate 88, fig. 2.)

Pl. rufo-piceus, elytris castaneis latissimis fere quadratis, antennarum clava compressa fere circulare, basi externe angulum formanti, pedibus latissimis.

Long. corp. lin. $4\frac{1}{2}$; lat. elytr. lin. $2\frac{1}{2}$.

Plat. Mellii, Westw. Linn. Trans. xvi. p. 685. Trans. Ent. Soc., II., pl. x., fig. 4. Guerin, Iconogr. Règne An. Ins. pl. 40, fig. 11.

Habitat Malabarâ. Mus. Melly, Gory, &c.

This singular insect in its dilated form approaches the Ceraptéri, but in all its essential characters it belongs to the present genus. It is subconvex, and of a rufo-piceous colour, with the upper surface of the body finely and distantly punctured, shining, very slightly setose, and with the head and prothorax lower than the back of the elytra; the head is small, rather glossy, with the anterior margin emarginate, and the hind part of the head narrowed into a neck; the clava of the antennæ is very large, nearly circular, and compressed—that is, the anterior or upper face is slightly concave, whilst the posterior or inferior surface is slightly convex, especially in the middle; the entire margin is acute, and with three very minute ciliated tubercles in the upper part of the margin a little before its extremity; the base of the clava is also produced in a somewhat square lobe at its under angle.

The maxillæ are furnished with a minute filiform appendage analogous to the inner maxillary palpi of the Carabidæ, which in the specimen examined by me was twisted, giving the appearance of being articulated in the middle; the maxillary palpi are large, with the second joint broad, and strongly produced at its inner extremity. The labial palpi are cylindrical, hirsute, and with the middle joint rather larger than the apical one. The prothorax is short, transverse, nearly twice as broad as the head,

* In consequence of this intelligence, the publication of the following number (which will complete the Monograph of the Paussidæ, as well as the present work itself), will be deferred until after the arrival of Captain Boys's parcel.

rather opaque, with the lateral margins rounded; the posterior portion is very short and narrow, but distinct, and separated from the anterior part by a nearly straight line. The elytra are glossy and castaneous, one-third wider than the prothorax, being rather longer than broad; each is furnished at its outer posterior angle with a small mamillated tubercle, the sides of which are raised so as to give it the appearance of a spiracle; the femora and tibiæ are very broad, short and depressed; the latter subobliquely truncated, the fore posterior being furnished with two calcaria; the tarsi are short and cylindrical, ciliated beneath, distinctly five-jointed, the first joint being the thickest and the fourth the shortest; the basal joint in the anterior tarsi is shorter than in the other feet.

Fig. 2*a*, underside of head; 2*b*, maxilla; 2*c*, labium and palpus; 2*d* and 2*e*, antenna in different points of view; 2*f*, posterior tibia and tarsus.

SPECIES VIII.—*PLATYRHOPALUS APLUSTRIFER* WESTW. (Plate 88, fig. 3.)

P. depressus, rufo-fulvus antennarum clava lata fere plana externe spinis duabus acutis, prothorace brevi plano lateribus antice rotundatis postice dilatatis, angulis posticis semicirculariter emarginatis, tibiis ad apicem externe acute spinosis.

Long. corp. lin. $3\frac{1}{2}$.

Platyrhopalus aplustrifer, Westw., Linn. Trans. xvi. p. 664, pl. xxxiii., fig. 51.

Habitat Bengalia. Mus. Britann. and Westermann.

This extraordinary species was first described by me from a somewhat mutilated specimen, in the British Museum, of unknown locality, so that I was unable to determine its legitimate situation. M. Westermann having, however, had the kindness to forward me a specimen, contained in his fine collection, from Copenhagen, for examination, I am enabled to give a more correct representation of it, and to speak of its true relationship to the present genus with decision. It is depressed, smooth, very slightly pubescent, and of a testaceous-fulvous colour; the head is short and almost rounded in front, and scarcely emarginate, convex, and with the disc entire. The antennæ are slightly pubescent, with the clava large, somewhat ovate, very compressed, with the anterior margin slightly rounded, the apex rounded, and the outer or upper edge produced into two long and very acute spines; the space between which is strongly emarginate, and between them and the base of the clava are two small impressions which seem to indicate rudimental articulations. The mandibles are curved and acute at the tips; the maxillary palpi have the second joint very broad, and acutely produced into a strong point at the inner extremity; the labial palpi arise from

a rather broad mentum, and have the two terminal joints of nearly equal size. The prothorax is flat, broader than the head, short, with dilated sides, the margin being rounded at the anterior angles; whilst the hinder angles are acutely truncate, or rather very deeply and nearly semicircularly emarginate, leaving a narrow posterior lobe to the prothorax nearly as in the genus *Lebia*. The elytra are oblong-quadrate, with the base rather broader than the prothorax, smooth, shining, impressed at the base, and of a rather brighter colour than the rest of the body. The feet are rather slender, with the tibiæ compressed at the tips, the outer angle being produced into an acute spine, and the inner angle furnished with two calcaria; the tarsi are five-jointed, but the fourth joint is very minute.

Fig. 3 *a*, lower parts of the mouth in situ; *, the mandible; 3 *b*, maxilla; 3 *c*, posterior tibia and tarsus.

GENUS.—PAUSSUS, *Linnæus*.

Corpus oblongum subdepressum; caput mediocri prothorace angustius; antennarum clava maxima formæ variabilis sæpius irregulariter obtrigona, compressa vel subdepressa basi externe in hamum producta. Labrum subcoriaceum parvum transversum angulis anticis rotundatis. Mandibulæ cornæ parvæ basi dilatatæ apice falcatæ acutæ denteque in medio marginis interni membranaque coriacea interna basali quadrata instructæ. Maxillæ stipite crustaceo (figs. *) processu terminali (interno) tenuissimo corneo mandibuliformi, valde arcuato et acute bidentato, spatio intermedio membranaceo (et in *P. Hearsiano* solum inveni rudimentum partis illæ cornæ in tab. 68, fig. 1. c—l, pugione † notatæ). Palporum maxillarium interiorum vestigia nulla detexi. Palpi maxillares (externi) 4-articulati articulo 2do maximo sæpius ad apicem interne acute producto. Mentum (ut videtur) rectangulare trianguliforme (hypothenusæ antice transversæ) lateribus obliquis capite coalitis, nec basi articulatam, angulis anticis lateralibus porrectis et in dentem subacutum productis. Labrum, os inferne claudens subquadratum corneum subplanum vel medio longitrosum subcarinatum, margine antico integro vel carinæ apice in dentem parvum centrale producto. Palpi labiales maxillaribus breviores labioque longiores ad ortum subconnati (sc. interdum in scapum parvum vel radiculam * inserti ut in *P. microcephalo*) labioque faciem inferiorem velantes et marginem ejus anticum ultra extensi, interdum reflexi, 3-articulati articulis duobus basalibus brevissimis ultimo magno longe ovato aut cylindrico, subulato, apice acuto. Prothorax subcylindricus vel truncate-cordatus paullo longior quam lator, plerumque quasi in duas partes divisus, parte antica plus minusve elevata. Scutellum parvum. Elytra prothorace latora, oblongo-quadrate, postice truncata angulis posticis externis tuberculiferis. Pedes breves robusti plerumque dilatati; tibiis quatuor posticis sæpius bicalcaratis. Tarsi 5-articulati articulo basali sæpius minuto. Abdomen 4-articulatum articulis duobus intermediis brevissimis.

In my monograph upon this family, published in the Linnæan Transactions, I endeavoured, at considerable length, to clear up the confusion existing in the writings of Afzelius, Latreille, and others, as to the real structure of the parts of the mouth. Having at that

* Is it possible that this scape of the labial palpi can be the real representative of the mentum, and that the part I have described as the mentum is in fact part of the skull?

time taken out the labium of only one species of this genus, of which the anterior margin was quite simple, I was induced to believe that in describing the labium as 3-dentate, Latreille had mistaken the two spines at the anterior margin of the mentum or gula triangularis for part of the labium. Having, however, recently dissected *P. microcephalus*, which appears to have been the species which he dissected (as he gives it as his first example of the genus, having received it from Mr. MacLeay), I find that its labium accords with Latreille's description. As to the part which I have regarded as the mentum (a part which Latreille states is wanting), it may be contended that the two porrected spines represent the produced undersides of the head, or undercheeks peculiarly developed, as in *Catogenus*, *Passandra* and *Megagnathus*; but as the true mentum is occasionally soldered to the head (as in *Siagona*), and as the maxillæ arise at the outersides of the produced spines (thus agreeing with the typical structure of the Coleoptera, where the base of the maxillæ arises at the outside of the mentum), I have the less hesitation, especially after a comparison of this part in this genus and in the preceding, in regarding the gula triangularis as the representative of the mentum.

As regards the external sexual marks of distinction in this genus, I am only able to state, that, according to Afzelius, the female of *P. sphærocerus* differs chiefly from the male in having the labial palpi rather narrower, the produced lobes or spines of the mentum glaucous, the maxillary palpi shorter, with the second joint narrower, the abdomen longer, and the posterior femora slenderer. In some individuals, we find the extremity of the abdomen furnished with two acute curved diverging spines, which, I believe, will be found to be a sexual peculiarity.

The species of this genus are much more numerous than those of any of the other genera. Some of them, possessing a subcontinuous prothorax, and a broad clava to the antennæ, are closely allied to the *Platyrhopali*; whilst others, with a bipartite prothorax, seem to approach *Pentaplatarthrus*, although the structure of the palpi, maxillæ, &c., of the last-named genus (see pl. 58, fig. 2, details) materially differs from that of the true *Paussi*.

Of the habits of this genus we possess but little information; sufficient, however, appears to be known to lead us to infer that the species are nocturnal in their habits, being often attracted by the light in houses after dark, and that, like *Claviger*, *Lomechusa*,

&c., they reside in ants' nests. Afzelius states of *P. sphærocercus*, that having (in January, 1796) entered upon a newly-erected residence, "one evening, having just lighted my candle, and begun to write, I observed something dropping down from the ceiling before me upon the table. It remained for a little while quite immovable, as if stunned or frightened, but soon began to crawl very slowly and steadily." Several others were obtained by him in like manner, whence he "concludes that it is a nocturnal animal, that it becomes benumbed by candlelight, that it lives in wood, and prefers new-built houses."* None were taken after February. Since the days of Afzelius, other captures, under similar circumstances, have been recorded.

Captain Boys, whose attention has been especially directed to the Indian species, and who has detected eight species, states, in his memoir above alluded to, that "in flight the *Paussi* are exceedingly easy and agile; the lower wing, when expanded, being in comparison to the size of the insect, of large dimensions; and when they alight, the movement is so sudden, and the elytra are closed so instantaneously over the lower wings, that they appear as having dropped down to the spot on which they rest, and where they generally remain several seconds previous to again attempting to move (*facts which I have also remarked as practised by many Carabici*). Its walk, however, entirely differs from that of this last-mentioned genus; for instead of being nimble, and occasionally rapid, I have never seen it moving but in a slow and sedate manner, at which time the antennæ are extended to the front of the head, and to these is occasionally given an upward vibratory motion.—On being seized, they emit from the anus a very acrid liquid, accompanied by an explosion, and attended with a strong scent, resembling that produced by *Brachini* and other allied genera when similarly treated; and although in minuter quantities, it is abundantly sufficient to produce a very sensible heat, and the crepitation may be distinctly heard and felt. Wherever the skin has been subjected to its action, discoloration immediately ensues, of a reddish-brown colour, which soon after turns to a brownish black, resembling the stain produced by the touch of caustic, and which remains permanently fixed for many days after. The explosion is repeated three or four times succes-

* Linn. Trans. iv., p. 261.

sively, at which periods a vapour may be observed to accompany each crepitation, attended with a strong and very penetrating odour, something like that of nitric acid." On touching the papillæ-like tubercles at the outer angles of the extremity of the elytra (giving cover to an elongated appendage of the same description, which is attached to the upper exterior margin of the abdomen; and which, by the aid of a pin's point, may be lifted up, and in a slight degree outspread, but collapsing immediately the impediment is removed), Captain Boys observed, that "they possessed the power of discharging a yellowish milky liquid, resembling pus in consistency, and which speedily overspread the lower part of the elytron, granulating into small egg-shaped grains. On repeating the irritation, the same results occurred; and in order to be certain of the fact, I tried each elytron twice with the same effect;—and in all these trials, each emission was accompanied with a faint acidulous odour."

Of the species described by Captain Boys, one is stated to have been captured on a heap of manure, a second was taken by sweeping high grass with a hoop net, three were taken at night, having been attracted to the lights; "another was rescued from the clutches of a small black ant, which circumstance I notice merely because a belief exists that the Paussi inhabit ant-hills;" and the last was found crawling up the wall of his bathing-room.

Since the article containing the description of *Ceratoderus bifasciatus*, (*ante* pl. 58, f. 1, p. 37,) was published, I have received a specimen of that curious insect from my friend Colonel Hearsey, by whom it was captured at large during the day-time.

In the former articles on this family in the present volume, I have alluded to the views of Dr. Burmeister as to the relationship of the Paussidæ with the Carabidæ analogous to that which exists between the Dyticidæ and Gyrinidæ (*ante* pp. 5, 10, 11, 12, 76, 80.) This relationship is considered to be exhibited in the structure of the mouth, wings, and indeed in the entire general structure of the insect, not excepting the antennæ which are brought into comparison with those of *Helluo laticornis*, *Ozæna orientalis*, and some species of *Morio*.*

* Captain Boys also, in his Memoir on the Genus above referred to, has likewise arrived at the conclusion that these insects are related to the Carabidæ, "approximating in outward appearance" to many of that family, possessing also five-jointed tarsi, and possessing, like *Brachinus*, the power of crepitation.

The examination of the structure of the mouth of *Platyrhopalus*, which I have detailed in my former article, has produced a result at variance with Dr. Burmeister's views, and from an investigation of the characters afforded by the wing veins of the Coleoptera, I believe it will be found that this ingenious relationship is equally unfounded; for it is to be observed that not only is the form of the wing of the *Paussidæ* quite unlike that of the *Carabidæ* and *Dyticidæ*, but that the arrangement of the wing-veins is much less complicated, and the part of the wing where the fold takes place is much further removed from the extremity of the organ in the *Paussidæ*; it is true that like those families it possesses a small cell at the recurved extremity of the radial vein, but this can scarcely be entitled to the weight which Dr. Burmeister would give to it, since it is wanting in all the *Cicindelidæ* which I have examined,* and yet the relationship of these with the *Carabidæ* is infinitely more decided than that of *Carabus* and *Paussus*. It is to be observed, however, that the genera *Rhysodes*, *Catogenus*, *Passandra*, &c., which I have hitherto regarded as the nearest allies of the present family, differ entirely in the arrangement of their wing-veins, the extremities being entirely destitute of longitudinal veins. The texture and general appearance of the body, the dilated antennæ having (as in the *Cerapteri*, &c.) no appearance of clavation at their extremities, the form and insertion of the feet and the anomalous structure of the mouth are, however, characters which I am still disposed to regard as of equal importance with those insisted upon by Burmeister. The *Paussidæ*, in fact, are an isolated and extremely anomalous group, and which every fresh discovery renders more perplexing to the entomologist.

The species of the genus *Paussus* may, for convenience, be arranged in the following divisions and subdivisions:

- SECTION A. *Prothorax quasi bipartitus.*
 - a. *Antennarum clava postice haud excavata.*
 - b. *Antennarum clava postice excavata.*
 - * *Species Indicæ.*
 - ** *Species Africanæ.*
- „ B. *Prothorax subcontinuus.*
 - a. *Species Africanæ.*
 - b. *Species Indicæ.*

- SECTION A. *Prothorax quasi bipartitus.*
 - SUB-SECTION a. *Antennarum clava postice haud excavata.*

* This character, hitherto unnoticed, will at once distinguish the family *Cicindelidæ* from the Linnæan *Carabi*, since all the sub-families of the latter group possess this little cell.

SPECIES I.—*PAUSSUS MICROCEPHALUS*, *Linnaeus*.

(Plate 88, fig. 4.)

Obscure niger vel nigro-piceus, clytris magis piceis vel rufo-piceis capite mutico, antennarum clava permagna, oblongo-sphæroidæa inæqualiter elevata ad basin pedunculato, pedunculo angulato, latere externo 4-tuberculato, basi supra in uncum obtusum unidentatum producto, prothorace in medio profunde excavato parte antica strangulo distincto valde et transverse elevata, illius margine supero acuto in medio interrupto; tibiis linearibus posticis paullo latioribus apice subangustioribus; abdominis apice setis brevibus luteis utriusque marginato. Long. corp. lin. $3\frac{1}{2}$ —4.

SYNON.—*Paussus microcephalus*, *Linnaeus* (Dahl. Dissert. Acad. Bigæ ins. p. 6, tab. ann. f. 6—10; *Afzelius*, Trans. Linn. Soc. vol. iv. tab. 22, f. 1—5.; *Fabricius*, Latreille, Gen. Crust., &c., tom. iii. p. 2; *Westw.* Trans. Linn. Soc. xvi. p. 631.

Habitat in Africa occidentali tropicali. Mus. Banks, (Soc. Linn. Lond.) *MacLeay*, *Latreille*, and *Turner*. (Individuum *Linnaeanum* in Museo *Linnaeano* haud nunc invenitur.)

This is the species upon which the genus was originally established by *Linnaeus*. Its true locality was for a considerable period a matter of doubt, but it is now fully established as a native of tropical Western Africa, whence a specimen has been lately received by *J. Turner, Esq.*, by whose kindness in placing it in my hands, I have been enabled to clear up several points in its structure, incorrectly described by *Afzelius*.

The head is even on its upper surface, and its front margin is slightly emarginate; the basal joint of the antennæ is terminated above in pale rounded vesicular tubercles, and in a living state the part of the antennæ bearing the four minute tubercles is upwards, and the curved peduncle downwards. The parts of the mouth are delineated in figures 4*a*—4*e*; 4*a* being one of the mandibles, showing the strong muscles whereby it is moved; 4*b* one of the maxillæ, seen from beneath, and 4*c* the same with the base of the maxillary palpi, seen laterally, showing the absence of the analogue of the inner maxillary palpi; 4*d* the labium, with the base of the labial palpi arising from the basal scape, and having the anterior extremity terminated by three points; 4*e* the same seen laterally showing the lateral continuation of the scape, and the thickness of the labium; and 4*f* the posterior tarsus and the extremity of the tibiæ destitute of calcaria.

SPECIES II.—*PAUSSUS JOUSSELINII*, *Guér.*

“Corps d'un brun foncé presque noir, avec l'abdomen et l'extrémité des élytres ferrugineux: tête petite, ayant un sillon longitudinal en avant et trois tubercules en forme de cornes sur le vertex; antennes rugueuses avec le 1er article grand presque carré, le second ou la massue subcylindrique, trois fois plus long que le premier, un peu rétréci au milieu, ayant en dedans et à la base un appendice tronqué, et, près de l'extrémité, trois fortes dents aiguës, corselet divisé en deux par un profond étranglement, ayant une profonde excavation longitudinale au milieu, et deux taches orangées produites par un fin duvet et placées de chaque côté et presque au fond de l'étranglement transversal; élytres lissés, avec une petite dent dilatée près de l'extrémité, pattes rugueuses comme les antennes.”

"Ce curieux insecte a été trouvé au Pégou, au bord de la rivière Yrrawady, à une journée de Rangoon; il était posé sur un tronc de palmier."—Guérin-Meneville, *Revue Zool.*, N^o. 2, p. 21.

I regret that I have not been able to obtain a figure of this species, which I have not found in any of the Parisian Cabinets which I have examined. From the structure of the prothorax the present appears to be the proper position of the species.

SPECIES III.—*PAUSSUS LINNÆI*, Westw.

(Plate 89, fig. 3.)

Parvus subcylindricus, rufo-piceus, elytris rufescentibus antennarum clava lata subquadrata, apice valde depresso recurvo, subhirsuto; tibiis quatuor anticis angustis.

Long. corp. lin. 2.

Habitat ———? In Mus. Soc. Linn. Lond.

Paussus Linnæi, Westw. In *Trans. Linn. Soc.* xvi. p. 634, pl. 33, fig. 22—24.

This is the most minute species of the family with which I am acquainted. It is preserved in the Linnæan Cabinet, being attached to the Linnæan label of the Genus, although quite distinct from the species described by Linnæus. Seen under a lens it appears very finely shagreened; the head and prothorax being opaque, whilst the hind part of the latter and the elytra are more glossy. The head is subconvex above, obscure, pitchy, and of a subtriangular form, but narrowed behind the eyes; the fore margin is deeply emarginate, and between the eyes is a rather deep horse-shoe-like excavation. The clava of the antennæ is rufo-fuscous with the apex rather pilose; seen in front it is of an oblong form, rather broadest towards the base, its outer angle being slightly produced; the anterior margin has three minute tubercles; the disc is very uneven, the apex being suddenly depressed, and reflexed, with an acute edge (figs. 3 *a*, 3 *b*). The prothorax is elongated and bipartite, with the fore part broader than the head, angulated at the sides, with a transverse carina, interrupted in the middle; the hinder part is deeply excavated in the middle, with irregular margins, bearing two small tufts of luteous decumbent hairs near the contraction; the lateral margins of this part are nearly rounded. The elytra are broader than the prothorax, but scarcely longer than it and the head together; they are of a dull rufo-pitchy colour, with a slight gloss, with the apex truncated. The four fore legs are rather narrow and subcompressed; but the posterior tibiæ are broader and depressed. I could not observe any calcaria to these legs. The legs and antennæ are of a reddish-brown colour.

This species is closely allied to the following, but is at once distinguished by its minute size, the want of the two porrected tubercles behind the eyes, the form of the clava of the antennæ, the want of the pale scales scattered over the body, &c.

SPECIES 4.—*PAUSSUS BURMEISTERI*, Westw.

(Plate 89, fig. 2.)

Obscuro castaneo-piceus albido-squamosus; elytris magis rufescentibus; capite pone oculos utrinque spina armato; thorace bipartito; elytris subangustis pedibusque dilatatis. Long. corp. lin. 3.

Habitat apud Promont. Bon. Spei. Mus. Reg. Berol. Hope, Evans, Westermann.

SYN. *Paussus Burmeisteri*, Westw., in Trans. Ent. Soc., ii., p. 86, pl. ix., f. 3.

Paussus contractus, Klug MSS.

This dull-coloured insect is closely allied to the preceding, as above mentioned; it is of a pitchy-chesnut colour, with pale scales scattered over the upper surface, and the elytra, especially towards the extremities, are of a redder hue, and destitute of gloss. The head is somewhat oval, narrowed in front, and impressed in the middle of the anterior margin, from whence runs a rounded impression towards the middle of the head; between the eyes is a small round excavation, within which is a minute tubercle; the head on each side behind the eyes is produced into a short blunt spine. The clava of the antennæ (fig. 2 *a*) is very irregular on the upper surface; the base broadly truncate, and slightly angulated in the middle, with the outer or upper angle produced into an obtuse point; the anterior margin with several small sinuations; the extremity rounded but slightly emarginate behind both near the basal point and apex, the middle space considerably bulging out, and bearing four minute setigerous tubercles. The prothorax is subovate truncate, rather broader than the broadest part of the head, as well as longer; near the anterior part is a deep constriction, the anterior portion being angulated at the sides, and formed into a transverse angulated ridge, interrupted in the middle; the hinder part of the prothorax is marked with a deep and broad sulcus in the middle, bearing two small patches of luteous hairs at the sides in front, and having the edges of the impressed part rather acute, but irregular. The elytra are but little wider than the prothorax; they do not entirely cover the extremity of the abdomen; they are transversely impressed at the base, and bear the ordinary tubercles at the apical outer angles. The feet (fig. 2 *d*) are short, with the femora and tibiæ broad and compressed, the

latter having the tips obliquely truncate, and the angles acute. The tarsi have the basal joint very minute, as well as the calcaria, which are almost indistinct. The abdomen (fig. 2c), in the specimens in the collections of the Rev. F. W. Hope and M. Westermann, is simply 4-jointed, without any exserted appendages. [Fig. 26 represents the front part of the body, seen sideways.]

The figure published by me in the Transactions of the Entomological Society, above referred to, was engraved from a slight sketch made during my visit to Berlin. The present drawing is from a specimen sent to me from Copenhagen by M. Westermann for examination.

SPECIES 5.—*PAUSSUS RUFITARSIS*, Sum. MS.

(Plate 89, fig. 4.)

Fulvo-flavescens; antennarum articulo basali, prothoracis angulis posticis, elytrorum disco pedibusque piceis; tarsis rufis, antennarum clava ovata convexa basi externe in spinam obtusam producta. Long. corp. lin. 3.

Habitat —? In Mus. Britann.

Paussus rufitarsis, Westw., in Trans. Linn. Soc., vol. xvi., p. 638, pl. 33, fig. 25—27.

The form of this species is comparatively short and broad; it is somewhat cylindric, and very delicately punctured, and slightly pubescent. The head is subtriangular, porrected, and nearly as large as the prothorax, with the neck narrowed, and the anterior part truncate and slightly emarginate; it is of a pale flavescent colour; and in the middle, between the eyes, is a rounded excavation, having a minute round impression on either side; between the eyes and the base of the antennæ is also a rounded impression on each side of the head. The maxillary palpi have the second joint very broadly ovate and compressed. The basal joint of the antennæ is pitchy, and the second pale livid-flavescient, the latter elongate-globose, rather pointed at the apex, slightly carinated along the anterior margin, with the upper angle of the base produced into an obtuse pitchy spine; the middle of the upper or hinder margin, with a rather depressed oblong impression, in which are four slightly elevated transverse ribs. The prothorax is subquadrate, scarcely broader and larger than the head, and bipartite; the anterior portion fulvous-yellow, with the sides of the hinder portion pitchy; the anterior part is elevated and short; along the middle runs an angulated ridge, which is interrupted in the middle, the lateral angles subacute; the hinder part is larger,

with the middle deeply impressed, the edges of the impression being prominent and irregular in shape, and with two rounded tubercles in the middle of the hind margin. The elytra are subcylindrical, covering the extremity of the abdomen, considerably broader than the prothorax, the hinder part being broader; they are shining, with the base reddish buff, and the lateral and posterior margins red; the disc pitchy, and very obsoletely and finely punctured, the outer and apical margins with several tufts of short, rigid, red setæ. The body beneath is pale testaceous, and glossy. The feet are pitchy; the femora slightly dilated, especially in the hind feet; and the tibiæ scarcely compressed, except the posterior pair, which are broader than the others. The tarsi are red. The abdomen in the single specimen I have hitherto seen is destitute of any external appendages.

[Fig. 4 *a*, represents the lower parts of the mouth; 4 *b*, the back view of the antennæ; 4 *c*, front view of ditto; 4 *d*, front part of body, seen sideways.]

The drawing, published with my monograph in the Linnean Transactions, has been corrected by a recent examination of the typical specimen of the species.

SPECIES VI.—*PAUSSUS PILICORNIS*, *Donovan*.

(Plate 89, fig. 1.)

Rufo-testaceus punctatus, elytris piceo-nigris, antennarum clava oblongo-ovata convexa apice attenuata incurva pilis longis sparsis. Long. corp. lin. 2.

Habitat in Bengalâ. In. Mus. D. Westermann.

SYN. — *Paussus pilicornis*, *Donovan* Ins. of India, pl. *Paussus*, fig. *.*. Westwood, Linn. Trans. xvi., p. 643.

This minute species having hitherto been known through *Donovan's* insufficient figure and description, it is with pleasure that I now offer a drawing of it, made from a specimen kindly sent to me from Copenhagen by M. Westermann, for that purpose. It is of a dark-red colour, with the exception of the elytra, which are pitchy black, shining and strongly punctate. The head is subtriangular, with the anterior margin notched, and with an impressed longitudinal line extending from the clypeus to the middle of the crown, where is a rather larger circular impression; the angles behind the eyes are but slightly prominent; the clava of the antenna is very setose and somewhat reversed pear-shaped, the basal portion being almost circular, with the outer angle at the base produced into a short obtuse spine; and the apical portion is

attenuated and bent upwards, with a slight keel along the anterior margin and a transverse depression near the base on the upper side (fig. 1 *b*). The prothorax is subquadrate with the anterior part broadest, constricted a little before the middle, the anterior angles rounded off, and the fore part having an elevated angulated ridge, which is broadly interrupted by a rounded depression in the middle; the centre of the prothorax is occupied with a deep transverse sulcus, and the hind part is occupied by two large raised glossy spaces separated down the middle by an impressed line; the elytra are black, with the base rather pitchy, strongly punctate, and setose. The abdomen is simple in the specimen examined (fig. 1 *a*). The body beneath is pitchy, with the breast, legs, mouth, and head of a redder pitchy colour.

[Fig. 1 *c* represents the labial palpus.]

SPECIES VII.—*PAUSSUS TURCICUS*, *Fridv.*

(Plate 88, fig. 5.)

Oblongus rufus, capite elongato opaco, prothorace transversim diviso, clytris nitidis apice dilatatis truncatis macula media communi longitudinali fusca. Long. corp. lin. $2\frac{3}{4}$.

Habitat in montibus Turcicis *Balkan* dictis.

SYN.—*Paussus turcicus*, Fridvaldszky in Hungar. Trans. 1835, vol. 2, pl. 6, fig. 5.
Westwood, in Trans. Ent. Soc. 2, p. 91.

I regret not being able to give any further particulars of this species, which from its locality must be regarded as interesting. The figure here given is copied from M. Fridvaldszky's plate.

SUB-SECTION *b*. Antennarum clava postice excavata.

* Species Indica. (Plate 90.)

SPECIES VIII.—*PAUSSUS TIBIALIS*, *Westw.*

(Plate 90, fig. 1.)

Castaneus nitidus, clytris plaga magna discoidali nigra, antennarum clava postice (vel supra) profundè excavata marginibus vix sinuatis, tibiis posticis dilatatis compressis. Long. corp. lin. $2\frac{3}{4}$.

Habitat in Bengalâ. In Mus. D. Westermann et Melly.

SYN.—*Paussus tibialis*, *Westw.* in Trans. Linn. Soc. xix. p. 47.

This very distinct species is chesnut-coloured and glossy, with the disc of each elytron marked with a large thick longitudinal blotch, leaving only the margins pitchy red. The head is rather narrower than the prothorax, nearly rounded and convex with the anterior margin scarcely emarginate, and with an impressed line running from the middle of the clypeus to the crown; the sides of the head behind the eyes are oblique and punctured. The second joint of the maxillary palpi is very much dilated and flattened,

being almost circular, with the inner apical angle produced and rounded, and the outer margin setose (fig. 1 *a*) ; the clava of the antennæ is subovate with the anterior margin acutely keeled and rather curved, the base produced at the outer angle into a rather obtuse tooth, the hind part of the antennæ (fig. 1 *b*) incrassated and deeply excavated, with the margins of the excavation nearly entire and setose, but marked inwardly with several small oval transverse impressions. The prothorax is rather broader than the head, and bipartite, the anterior part with the sides obtusely angulated, and the disc transversely elevated, the middle being slightly interrupted ; the hinder part of the prothorax is deeply excavated in the middle, with the edges slender and elevated. The elytra are broader than the prothorax, gradually dilated to the extremities, and of a shining black colour, with all the margins fulvous chesnut and setose ; the disc very delicately and widely punctured when seen through a lens. The four fore-feet are slender and cylindric, but the posterior pair have the femora and tibiæ dilated and compressed ; the calcaria in all the feet appear to be obsolete.

[Fig. 1 *c* represents the underside of the abdomen.]

I am indebted to the kindness of Mr. Westermann for a knowledge of this Indian species, which he forwarded for my examination from Copenhagen.

SPECIES IX.—*PAUSSUS FULVUS*, Westw.

(Plate 90, fig. 3.)

Luteo-fulvus subopacus, clytris magis rufescentibus, rivuloso-rugosis, antennarum articulo basali, prothoracis lateribus posticis, femoribusque obscurioribus ; capite supra profunde rotundato-impreso. Long. corp. lin. 3.

SYN.—*Paussus fulvus*, Westw. in Trans. Linn. Soc. xix. p. 47.

Habitat in India Orientali. In Mus. Hope et nostr.

The head is subtriangular, and is nearly as broad as the prothorax behind the eyes, where it is angulated to the narrowed part or neck ; the anterior part is truncated and slightly emarginate, with an impressed line or gutter extending from the clypeus towards the crown, where is a large and deep circular impression with the margin elevated ; it is of a luteo-fulvous colour, sub-opaque, and finely punctured. The antennæ have the basal joint punctate, and the clava is large broad ovate, depressed along the fore margin, which is slightly sinuated, the hind part of the antennæ being much dilated and deeply excavated, with the entire margins of the excavation sinuated, and the base, with the outer angle produced

into a broad and obtusely rounded tooth. The maxillary palpi have the second joint very large, punctate, and almost subcordate; the inner apical angle being rounded off; the labial palpi are separated at the base by a minute conical piece or scape, as in the type of the genus. The prothorax is bipartite, with the anterior part rather the widest, its sides being produced into rather acute angles, and its hind margin extended further backwards than in the preceding; the middle part of the prothorax is distinguished by a deep transverse impression, with the margins elevated on each side. The elytra are much wider than the prothorax, opaque and rugulose, the rugæ running together very irregularly. The feet are very much punctured, compressed, and rather broad, the posterior tibiæ being slightly curved, and broader than the others. The calcaria* are wanting, being replaced by a few setæ, similar to those at the tips of the joints of the tarsi. The abdomen has a slight notch at the anus, but is destitute of any external appendages.

[Fig. 3 *a*, represents the lower parts of the mouth; 3 *b*, maxillary palpus; 3 *c*, back view of antenna; 3 *d*, side view of front of body; 3 *e*, underside of abdomen.]

SPECIES X.—*PAUSSUS STEVENSIANUS*, Westw.

(Plate 90, fig. 2).

Pallide luteus, capite subrugoso; tuberculis duobus elevatis inter oculos; antennarum clava magna postice excavata, marginibus excavationis sinuato-tuberculatis; elytris apicem versus fasciculis duobus minutis setarum instructis. Long. corp. $3\frac{3}{4}$.

Habitat in India Orientali. In Mus. S. Stevens.

SYN.—*Paussus Stevensianus*, Westw. in Lin. Trans. xix. p. 48.

This species is nearly allied to *P. fulvus*, but differs in its paler colour, narrow feet, pair of tubercles between the eyes, &c. The head is nearly as broad as the prothorax, pale luteous, finely rugose, the posterior angles behind the eyes rounded off, with a distinct neck, the fore margin or clypeus having a central notch, from whence extends an impressed line to the middle of the crown, where are two elevated tubercles excavated at the tips with a fine impressed line between each of them and the eyes. The clava of the antennæ is large and strongly punctate, the anterior margin acute and curved, and the posterior considerably dilated and excavated, the sides of the excavated part being sinuato-tuber-

* By a typographical error the tibiæ of this species were described in the Linn. Trans. as "calcaratis," instead of "ecalcaratis."

culated, and the basal external angle produced into a broad rounded lobe. The maxillary palpi have the second joint very broad. The prothorax is bipartite, the sides of the anterior part being acutely angulated with a transverse elevated carina, interrupted in the middle, the posterior half of the prothorax with the sides elevated and the middle deeply impressed, the hind part having two elevated and rounded lobes in the middle. The elytra are pale luteous, somewhat shining, with the hinder part darker, very finely rugose, nearly twice as broad as the prothorax, having near each of the posterior lateral angles a small fascicle of reddish rigid setæ. The legs are elongated, slender, and punctated, the posterior tibiæ being rather broader than the others; the tarsi distinctly five-jointed, but with the calcaria obsolete and replaced by a few short bristles, similar to those at the extremity of the joints of the tarsi. The anal segment of the abdomen is furnished in the middle with two curved horny points. The head and thorax beneath are pale coloured, but the abdomen and mesosternum are darker.

Fig. 2 *b* represents the head and prothorax, seen sideways; fig. 2 *a*, the antenna seen from behind, showing the excavated part, with its sinuato-tuberculated margins; and fig. 2 *c*, the underside of the abdomen.

SPECIES XI.—*PAUSSUS BOYSII*, *Westw.*

(Plate 92, fig. 2, and pl. 90, fig. 6.*)

Luteo-fulvus, antennarum clava antice valde depressa, marginibus excavationis subcrenulatis, capito supra in medio excavatione rotunda, elytris basi apiceque exceptis nigricantibus singulo versus apicem setula instructo. Long. corp. lin. $3\frac{1}{2}$.

Habitat in India orientali, D. Boys.

SYN.—*Paussus* No. 6. Boys in Journ. of Asiat. Soc. of Bengal, N.S., No. 54, p. 433, and Tab. ann., fig. 6.

The kindness of Captain Boys in sending to me his specimen of this insect from India, enables me to determine its situation between *P. Stevensianus* and *fulvus*, as it possesses the rugose elytra, armed near the tip with a pair of short curved bristles of the former, and the deep circular excavation of the head of the latter; it is also much more glossy than the latter, and its legs are very much

* The whole of the row of figures at the foot of pl. 90 are copied from the plates accompanying Captain Boys' memoir, of which he justly complains to me in his letters, that they are very unfaithful copies of his drawings, which is certainly the case, Captain B. having sent me his original figures as well as the insects themselves.

narrower, as is also the reflexed lobe at the base of the club of the antennæ. The following is Captain Boys's description:—

“Length 6-20ths of an inch. The antennæ are composed of two joints, of which the last is very large and in the form of a wide-mouthed cornucopia, being attached to the first at its basal angle. The margins of the upper side are slightly crenulated, and the upper surface is rather deeply excavated, giving this part a cuspidiform appearance. Anterior and posterior margins compressed, the latter produced into a blunt recurved tooth. The sides of the club are striped with six grooved bands; the eye when seen from above appears round, of an irregular oval shape when viewed from the side. Head trigonal depressed, with a marginal excavation, but no groove on the upper part. The thorax appears as if composed of two portions, the anterior being angulated and forming a rather sharp spine on each side, with its base inserted in the posterior part; this latter portion is crenulated, with the exterior margins produced and rounded: a sulcus in the form of a bracket crosses the centre. The elytra are black, broadly patched anteriorly with brownish sienna; the posterior margin has a faint undefined line of the same colour, which blends into the general black of the wing-cases. The follicles at the exterior margin of the elytra posteriorly are much produced, and close to them on each side is a very curious moveable spine (pl. 90, fig. 6 *b*), slightly incurved and projecting over the latter segment of the abdomen (fig. 6 *a*). Body beneath a bright chesnut; head, antennæ, and thorax livid brown: all the joints in the tarsi are simple, cylindrical, furnished beneath with hairs, and of five joints in each leg, the first small, the last longest.

“*Note*.—Taken accidentally, while sweeping in high grass, with a net, under a Munja clump (*Saccharinum Munja*). On withdrawing this insect from the net, it gave two very distinct explosions, leaving the ordinary black stain on my fingers; the abdomen also swelled very much when submitted to the hot water process.” Upon being plunged into hot water, “a crepitation may be heard, and the abdomen becomes greatly distended, probably by rarefaction of air contained in vessels which give their assistance in its explosive powers, and the part retains the inflated appearance until a small perforation is made in it with a needle's point or such-like instrument, which, allowing the escape of the confined

air, enables the abdomen to contract to its natural size. The same fact is peculiarly remarkable in many species of *Brachinus*."

Pl. 92, fig. 2 *a*, represents the head and antennæ seen sideways.

SPECIES XII.—*PAUSSUS DENTICULATUS*, *Westw.*

(Plate 92, fig. 1, and pl. 90, fig. 17.)

Obscure-brunneo-castaneus, setosus, elytrorum disco nigricanti, capite tuberculo minuto excavato inter oculos; excavatione clavæ antennarum denticulata, prothorace postice latiori. Long. corp. lin. $2\frac{3}{4}$.

Habitat in India orientali, D. Boys.

SYN.—*Paussus* No. 1. Boys in Journ. of Asiat. Soc. of Bengal, N.S., No. 54, p. 426, and tab. ann. fig. 1.

I am likewise indebted to Captain Boys for sending me his specimen of this new and very distinct species. The following is Captain B.'s description:—

"Length 7-20ths of an inch; body brown, deeper in the middle of the elytra. Antennæ of two joints, of which the last is large, cuspiform, and having dentated edges, with a scallop between each tooth; apex rounded exteriorly: basal angle produced, acuminate, and forming a tooth at the end of the superior margins. Lower portions carinated; front view resembling the bows of a boat; head light brown, rounded posteriorly, emarginate in front, sunk nearly to the thorax, and bearing a minute depression in the centre of its upper part in the form of a diminutive horse-shoe. Eyes round when viewed from above, reniform when seen in flank. Thorax suboctagonal, with rounded margins anteriorly, angulated and scalloped at the corners posteriorly, bisected in its centre, the posterior portion bearing a strongly produced emargination, which crosses transversely in the form of a bracket. Tarsi simple, cylindrical, the last longest, the first very small, almost invisible; of five joints in each leg, all of which are furnished with hairs beneath; elytra truncated posteriorly, of a uniform width throughout, slightly depressed; body oblong flattened; palpi conical, not very salient; maxillary ones tumid at the base and over-arching the labials. Taken on a heap of manure at Plassie, near Mhow."

Fig. 1 *a* represents the head and antennæ seen sideways, and 1 *b* one of the hind tibiæ and tarsi.

SPECIES XIII.—*PAUSSUS THORACICUS*, *Donov.*

(Plate 90, fig. 4.)

Ferrugineo-testaceus, elytrorum disco late nigricanti, antennarum clava oblonga compressa sub-trigona margine antico acuto, postico vel supero excavato, cavitate ovali marginibus crenulatis; prothoracis lateribus anticis angulatis. Long. corp. lin. $3\frac{1}{2}$.

Habitat in India orientali, Bengala, &c. In Mus. nostr., &c.

SYN.—*Paussus thoracicus*, Donovan. Epit. Ins. of Ind. t. 4, f. $\frac{5}{8}$. Westw. in Linn. Trans. xvi. p. 640, tab. xxxiii. fig. 28—30.

Paussus trigonicornis, Latreille, Gen. Crust., &c. vol. iii. p. 3, pl. 11, fig. 8; Schonh. Syn. Ins. 1, pt. 3, p. 19.

This species is subcylindrical, with the anterior part of the body attenuated. The head is scarcely so broad as the front of the prothorax, its anterior margin is acute and emarginate, its lateral margins, as far as the eyes, nearly parallel; an impressed line extends from the middle of the clypeus to the crown, which bears two small elevated curved ridges, which somewhat resemble a horse-shoe, the intermediate space with two minute tubercles. The maxillary palpi have the second joint very much dilated, but with the apical internal angle not salient; the terminal joint of the labial palpi very slender. The antennæ have the clava compressed, oblong subtrigonal, with the anterior or lower margin acute, and the posterior or upper one dilated and boat-shaped, or excavated into an oblong-oval cavity, filled with pale coloured membrane, and having each of its margins scalloped, each scallop marked with an impressed dot; the basal angle is produced into an acute point. The prothorax is bipartite, the centre very deeply excavated, the anterior portion with the margins acutely angulated, and with its middle part dilated behind and emarginate; the hinder part has the sides in front considerably elevated and also angulated within. The elytra are black, subopaque, with the base and narrow apical margin of brick-red; the disc with minute luteous scales, and their sides with rigid setæ standing out at right angles from the body. The feet are elongate and slender, the posterior tibiæ being more dilated and with the tips narrowed. The tibial calcaria are obsolete. The extremity of the abdomen is furnished with two incurved fascicles of hairs, and the anal segment is destitute of the two curved horny points.

The observation of Latreille upon this species (the name of which he unnecessarily altered to *trigonicornis*), “*P. lineato proximus et forte varietas elytris latius nigris*,” appears to me to be incorrect, that species belonging as I imagine to the second section, and in

structure being nearly allied to *P. affinis* and *Hardwickii*. The supposition of Donovan that this insect and *P. Fichtelii* are the sexes of the same species is certainly incorrect.

Fig. 4 *a* represents the antennæ seen from the front, and fig. 4 *b* from behind.

SPECIES XIV.—*PAUSSUS FICHELII*, *Donov.*

(Plato 90, fig. 5, 8, 9.)

Testaceus elytrorum disco nigricanti, prothoraco angustiori sub-bipartito, antennarum clavâ oblonga postice excavata, cavitate pyriformi marginibus sinuato-denticulatis, capite supra profunde excavato. Long. corp. lin. 3.

Habitat in India orientali (Bengala, Calcutta, &c.) In Mus. Kirby, Saunders, Boys, &c.

SYN.—*Paussus Fichtelii*, Donovan, Epirt. Ins. Ind. pl. 4, f. * *. Westw. in Linn. Trans. xvi. p. 641, tab. xxxiii. fig. 31, 33. Saunders in Trans. Ent. Soc., vol. ii. p. 83 pl. ix. fig. 1. Boys, in Journ. of Asiat. Soc. of Bengal, N.S. N° 54, p. 429, and tab. ann., figs. 4 & 5.

This species is most nearly allied to *P. thoracicus*, from which, however, it is abundantly distinct, the general shape of the clava of the antennæ, and the number of elevations on the margins of the excavation being different; the keel-like anterior margin of *P. thoracicus* is replaced by an obtuse and irregular fore-margin, the front of the head is more emarginate in *P. thoracicus*, and more distinctly quadrate behind the eyes than in this species, in which the impression on the crown of the head is much deeper and rounder than in *P. thoracicus*, and incloses two minute, elevated tubercles.

The margins of the elytra are simply pubescent, whereas they are setose in that species; the lateral lobes of the mentum are long and acute; the extremity of the podex (which, seen from beneath, appears like a fifth joint of the abdomen) is furnished with two small tufts of short, thick hairs; the legs are comparatively long and slender.

Captain Boys describes two varieties of this species, which are evidently the sexes, one with the two diverging curved spines beneath the extremity of the abdomen (pl. 90, fig. 8 *a*), which is of an equal width throughout, and with the margins of the excavation of the clava of the antennæ presenting the appearance of a screw; the other, destitute of the two curved spines (pl. 90, fig. 9 *a*), and having the crenulations of the prothorax, across the centre, more deeply sculptured and foliated, with the abdomen narrowed as it approaches the thorax.

The former of these varieties, although considerably irritated,

could not be made to crepitate; on the contrary, when touched, it simulated death by contracting its limbs. The latter variety, however, discharged its little battery with facility, discolouring test-paper, and staining the hands so strongly that it was not till the end of eighteen days that the marks were worn out. On being plunged into hot water, its abdomen became very greatly distended, as is also observed in *Brachinus*, &c. when similarly treated.

The variety with the two horny ventral points was rescued by Captain Boys, "from the gripe of a small black ant, which in spite of its struggles was bearing it along with the utmost facility, holding on by one of its antennæ," thus confirming the fact of a connexion between the ants and *Paussi*, analogous to that which exists between the former and *Claviger*, &c., and leading to a clue for the discovery and capture of other species.

Figs. 5 *a*, and 5 *b*, represent the antennæ in different positions, and 5 *c*, the underside of the abdomen.

* * SPECIES AFRICANÆ. (Plate 91.)

SPECIES XV.—*PAUSSUS EXCAVATUS*, Westw.

(Plate 91, fig. 2.)

Obscure fusco-rufescens vel castaneus, capite et prothorace paulo obscurioribus, antennarum clava lata ovata basi hamato margine antico acuto et 4-foveato, postico valde excavato marginibus sinuatis, capitis vertice bi-impresso, pedibus posticis latissimis. Long. corp. lin. 2.

Habitat in Senegallia, Mus. Dupont. Parisiis.

SYN.—*Paussus excavatus*, Westw. in Linn. Trans. xvi. p. 637, pl. xxxiii. fig. 60, 61.

Paussus crepitans, Dupont, MSS.

The figure now published was made during a recent visit to Paris, from M. Dupont's original specimen, which still, I believe, remains unique. It is very closely allied to the next species, from which, however, its geographical range as well as several structural characters seem sufficiently to separate it.

The two oval excavations on the crown of the head are outwardly margined by two narrow impressed curved lines, which become nearly confluent behind; the clava of the antenna is flat beneath, and much more strongly punctured than above; the hind part of the head is very finely granulated, and the elytra are smooth.

Fig. 2 *a* represents the impressions on the crown of the head, 2 *b*, the antenna seen from above, and 2 *c*, the same seen as in a transverse section.

SPECIES XVI.—*PAUSSUS RUBER*, *Thunberg*.

(Plate 91, fig. 1.)

Castaneo-ferrugineus, sub-nitidus, vix pubescens sub lente punctatissimus; vertice impressionibus binis parvis ovalibus, capite antice emarginato; antennarum clava obovali margine antico subrecto et subacuto impressionibus nonnullis transversis brevibus intra marginem; margine postico oblongo-ovale excavato; serieque transversa impressionum in pagina ejus inferiore, angulo externo basali hamato margineque basali bisinuato, thorace bipartito parte antica in spinam conicam utrinque producta, parte postica longiore sed angustiore antice lateraliter subspinoso disco profunde et irregulariter sulcato, pedibus subdilatatis complanatis rugose punctatis. Long. corp. lin. 2½.

Habitat apud Prom. Bon. Spei. D. Krebs. In Mus. Reg. Berolinensi.

SYN.—*Paussus ruber* Thunberg, Act Holm. 1781, p. 170. 1. Afzel. Linn. Trans. iv. p. 272. Westw. Linn. Trans. xvi. p. 635. Trans. Ent. Soc. vol. ii., p. 88, pl. ix. fig. 5.

The above description and figure are made from a specimen in the Royal Museum at Berlin, being the only individual I have hitherto seen of the species which approaches very close to the preceding.

Fig. 1 *a* represents the front of the body seen sideways; 1 *b*, the labial palpus; and 1 *c*, the antenna seen from above.

SPECIES XVII.—*PAUSSUS COCHLEARIIUS*, *Westw.*

(Plate 91, fig. 3.)

Ferrugineus subnitidus flavo-setosus, antennarum clava basi in spinam supra producta, valde compressa dimidio apicali dilatato erosocochleario, capite antice emarginato linea impressa ad medium (impressum) verticis extensa; menti dente centrali fere oblitterato; prothorace capite vix majori bipartito, parte antica lateribus angulatis et postice elevata; parte postica angulis ejus anticis lateralibus prominentibus, transversa, in medio valde compressa tuberculisque duobus minutis centralibus; clytris setis flavescens (in lineas irregulariter dispositis) indutis, abdominis segmentis integris; pedibus satis elongatis tibiis præsertim dilatatis. Long. corp. lin. 2½.

Habitat in Africa Australi, (P.B.S.) In Mus. Melly, Westw. &c.

SYN.—*Paussus cochlearius*, Westw., in Trans. Ent. Soc., ii., p. 88, pl. ix. fig. 6.

The original specimen of this species, described by me from the collection of Dr. Hooker, has been, with great liberality, added by him to my cabinet. I have also received it from M. Dupont.

Figs. 3 *a*, and 3 *b*, represent the antenna seen in different positions.

SPECIES XVIII.—*PAUSSUS KLUGII*, *Westw.*

(Plate 91, fig. 4.)

Niger; capite antice emarginato linea impressa e clypeo ad verticem extensa, antennis nigris punctatis, clava lateribus sub-parallelis margine antico fere recto et acuto, postico vero multo crassiori et in naviculam longam excavato cujus margo superior integer, inferior vero tuberculis 6 instructus; prothorace capite multo majori bipartito, parte antica lateribus angulatis et in medio transverso et acute elevata, parte postica e præcedente excavatione magna et irregulari separata in quâ macula 2 magnæ laterales aureo-sericantes; clytris lævibus nitidis piceis marginibus lateralibus apiceque rufescenti-luteis, pedibus nigris geniculis tarsisque piceis crassis dilatatis, pari postico latiori, abdomine rufescenti segmentis integris. Long. corp. lin. 3½.

Habitat apud Promont. Bonæ Spei. D. Krebs. In Mus. Reg. Berol. et nostr. Amicissimo communicavit D. Klug.

SYN.—*Paussus Klugii*, Westw., in Trans. Ent. Soc. vol. ii., p. 85, pl. ix, fig. 2.
Paussus runcinatus, Klug MSS.

The tibiæ are destitute of calcaria, and the outer margin of the elytra is furnished with a series of curved setæ. The middle tooth of the mentum is obliterated.

Fig. 4 *a* represents the labrum; 4 *b*, the maxilla in situ; 4 *c*, the same detached; 4 *d*, the mandible; 4 *e*, the labium and its palpi.

SPECIES XIX.—*PAUSSUS LATREILLII* Westw.

(Plate 91, fig. 5.)

Castaneo-brunneus, clytrorum disco obscuro, capite antice emarginato, tenuissime punctulato utrinque prope marginem internum oculorum impressione parva ovali, antennarum clava elongata angustiori punctatissima postice excavata margine infero sub-serrato, palpis maxillaribus articulo 2 do. dilatato; prothorace capite multo majori, magis nitido bipartito, parte antica lateribus angulatis parteque postica valde excavata maculis duabus aureo-pilosis versus medium positis; clytris parum nitidis et $\frac{1}{2}$ punctulatis disco nigricanti luteo-setosis, pedibus obscurioribus punctatis, tibiis ecalcaratis, posticis duabus dilatatis. Long. corp. fere lin. 3.

Habitat in Sierra Leona, Senegallia. Mus. Britann., Buquet, Norris.

SYN.—*Xiphocera brunnea* Latr. inedit.

From a sketch of the specimen of this insect in M. Buquet's Collection, I was induced to believe it to be merely a variety of the former species; but having since had an opportunity of comparing my specimen of *P. Klugii* with specimens of this species in the British Museum and Mr. Norris's Cabinets, I find them quite distinct, not only in colour but in structure.

The calcaria are obsolete; the lateral margins of the elytra have a row of curved setæ, and the segments of the abdomen are entire.

Fig. 5 *a* represents the head and prothorax, seen sideways; 5 *b*, the maxillary palpus; 5 *c*, the abdomen seen beneath.

SECTION B.—PROTHORAX SUBCONTINUUS.

SUBSECTION *a*.—SPECIES AFRICANÆ.

SPECIES XX.—*PAUSSUS SPHÆROCERUS*, Afzel.

(Plate 92, fig. 3.)

Rufo-castaneus nitidus, capitis vertice in cornu conico erecto apice piloso producto; antennarum clava spherica livida magnitudine capitis basi hamato, carina minuta verticis tuberculo pilifero castaneo terminata instructa, prothorace supra parum inequali, subdepresso et vix bipartito parte antica subelevata lateribus rotundatis postice subemarginata; parte postica lateribus rectis margine anteriori signo medio quadrato, depresso, nigriscenti posteriorique parum elevato, clytris punctatis rufescentibus; pedibus longioribus gracilioribus subæqualibus. Long. corp. lin. $3\frac{1}{2}$.

Habitat in Sierra Leona. D. Afzelius. In. Mus. Soc. Linn. Lond.

SYN.—*Paussus sphærocerus* Afzelius in Linn. Trans. iv. p. 270, tab. 22 f. 2—6. Sturm. Catal. meiner ins. samml. pl. 4, fig. 31.

Paussus spheroides, Donovan. ins. Ind. sub g. *Paussus*.

The habits of this very distinct species have been partially

detailed in the introductory observations on the family (*ante*, p. 3), from the memoir of Afzelius, published in the 4th vol. of the Linnæan Transactions.

Fig. 3 *a* represents the head and prothorax in profile; 3 *b*, the labium, maxillary and labial palpi; 3 *c*, the labial palpus; 3 *d*, one of the tarsi.

SPECIES XXI.—*PAUSSUS ARMATUS*, *Dejean*.

(Plate 93, fig. 1.)

Oblongus haud nitidus, laevis obscure rufescenti-fuscus, capitis vertice spina erecta acuta armato; antennarum clava rotundato-ovali marginibus acutis basi externe in spinam producta disco supra et infra convexo; prothorace capite fere angustiori, pedibus valde setulosis obscurioribus. Long. corp. lin. 5.

Habitat in Senegallia, Sierra Leona, Gambia. In Mus. Dupont, Saunders, Hope, Chevrolat, &c.

SYN.—*Paussus armatus*, (Dej.) Westw. in Trans. Linn. Soc. vol. xvi. p. 645, pl. 33, fig. 62—64; Trans. Ent. Soc. vol. ii. p. 89.

Paussus cornutus, Chevrolat in Guérin Mag. de Zool. Ins. pl. 49.

The narrow prothorax of this insect distinguishes it from the great majority of the species of this genus. The very setose legs, and clava of the antennæ, the latter not larger than the head and closely punctured, the tibiæ furnished with two spurs, and the abdomen with two diverging horny points at the apex beneath, are also amongst its leading characters. The head is opaque, but not distinctly punctured, and the tarsi are as thick as the tibiæ. The structure of the palpi proves that this species is a species of the present genus. The insect figured by M. Guérin under the name of *P. cornutus*, Chevrolat, is identical with the present species, as, indeed, M. Chevrolat has since ascertained, the name *armatus* being now attached to the specimen in his collection. Figures 2, 2 *a*, and 2 *b*, are copied from M. Guérin's figures; the spine of the head is, however, much less acute than in the specimen represented at fig. 6.

Fig. 1 *a* represents the head seen sideways; 1 *b*, the maxillary palpus; 1 *c*, the labial palpus; 1 *d*, the antenna; 1 *e*, one of the tarsi.

SPECIES XXII.—*PAUSSUS CILIPES*, *Westw.*

(Plate 93, fig. 3.)

Obscure rufo-castaneus, clytris magis rufescentibus, capite oblongo obscuro punctato, antennarum clava punctatissima setulosa, rotundato-ovali, basi extus hamato, marginibus acutis disco utrinque convexo, prothorace oblongo, capite vix latiori, in medio constricto, et nigricanti; parte antica elevata linea tenui e sulco medio antice ducta, sed ad marginem anticum haud extensa, tibiis obscuro castaneis extus fulvo ciliatis vel setosis; capite supra

tuberculo parvo corniformi armato; abdominis segmentis simplicibus; elytris tenue punctatis. Long. corp. lin. 3.

Habitat in Sierra Leona, D. Morgan. In Mus. Britann.

This species is closely allied to *P. armatus*, from which its small size and more strongly punctate disc at once distinguish it. A single specimen is contained in the British Museum collection, presented by the Rev. Mr. Morgan.

Fig 3 *a* represents the head seen sideways; 3 *b*, and 3 *c*, the antennæ in different positions.

SPECIES XXIII.—*PAUSSUS ÆTHIOPS*, Blanch.

(Plate 93, fig. 6.)

Castaneus, sub-nitidus elytris magis rufescentibus punctatis, capite ante oculos breviori, vertice spina tenui acuta setosa armato, antennarum clava ovali basi extus in spinam obtusam producta, disco subdepresso sublente punctatissimo, tibiis gracilibus 2-calcaratis, tarsis 5-articulatis articulo basali minuto, prothorace vix capite latiori medio constricto, parte postica in medio longitudinaliter latè-imprensa; abdominis basi et metasterno castaneo-fulvis. Long. corp. lin. 4½.

Habitat in Nubia, D. Botta. In Mus. reg. Paris.

SYN.—*Paussus Æthiops*, Blanchard in Regne An. Edit. Crochard. Ins. pl. 61, fig. 8.

The shape of the clava of the antennæ, and the habitat of the species, distinguish it from the other species with the head cornuted between the eyes.

Fig. 6 *a* represents the head seen sideways; 6 *b*, the maxillary palpus; 6 *c*, the antenna; 6 *d*, the same seen sideways.

SPECIES XXIV.—*PAUSSUS DENTIFRONS*, Dej.

(Plate 93, fig. 4.)

Totus castaneo-fulvus nitidissimus; antennarum clava brevi lata triangulari-ovata supra et infra disco in medio convexo, basi truncata et in spinam obtusam extus producta; vertice spina erecta setigera armato; elytris punctatis, prothorace antice lateribus dilatatis capite latiori in medio profunde impresso et sulco tenui longitudinali fere ad marginem anticum extensa; pedibus compressis nitidis, tibiis bicalcaratis tarsorum articulo basali minuto abdominis segmentis simplicibus. Long. corp. lin. 4.

Habitat in Senegallia. Mus. Dupont, Guérin, nostr., &c.

SYN.—*Platyrhopalus dentifrons*, (Dej.) Westw. in Trans. Linn. Soc. xvi. p. 662, pl. 33, fig. 68–70.

The structure of the palpi of this species proves it to belong to the present genus, and not to *Platyrhopalus*, in which I had at first provisionally arranged it. The form of the clava of the antennæ, and the very glossy surface of the body, separate it from the other cornuted species of the genus.

Fig. 4 *a* represents the head seen sideways; 4 *b*, the maxillary palpas; 4 *c*, the antenna; * the same seen sideways; 4 *d*, one of the tarsi.

SPECIES XXV.—*PAUSSUS CURVICORNIS*, *Chevrolat*.

(Plate 93, fig. 5.)

"D'un ferrugineux un peu obscur avec l'extrémité des élytres plus pâle; tête ayant sur le vertex une pointe conique un peu courbée en avant, corselet divisé transversalement par un fort étranglement, ayant une profonde impression à son lobe postérieur; élytres presque lisses avec quelques tubercules très petits et une légère dilatation à l'extrémité et en dehors; pattes d'une couleur plus foncée. Long. corp. 10 mill."

Habitat in Senegallia. Mus. Chevrolat.

SYN.—*Paussus curvicornis*, Chevrolat in Silberm. Rev. Ent. 4, 263; Guérin, Iconogr. du Règne An. Ins. pl. 40, fig. 8.

Paussus cornutus, var. Chevrolat in Guérin Mag. de Zool. No. 49, fig. 1a, 2, 2a.

The accompanying figure and description are copied from the works above referred to, as I have not had an opportunity of examining the species, and am not therefore able to speak with precision as to its more decided characters.

Fig. 5 *a* represents the head and antennæ seen in front; 5 *b*, the head seen sideways; and 5 *c*, the extremity of the abdomen beneath.

SPECIES XXVI.—*PAUSSUS LÆVIFRONS*, *Dej.*

(Plate 92, fig. 4.)

Rufo-castaneus, elytris magis rufescentibus; lævis nitidus latus subdepressus vix setosus; capite inermi, antennarum clava fere ovata depressa basi truncata externe in unguem parvum producto margineque externo 4-subdentato; prothorace utrinque antice rotundato-dilatato; palpis maxillaribus vix dilatatis, articulo 2do maximo; elytris punctatis capite et prothorace minus punctatis; tibiis 4-posticis 2-calcaratis, pedibus dilatato-compressis. Long. corp. lin. 4½—5.

Habitat in Senegallia. Mus. Reiche, Dupont, Norris.

SYN.—*Platyrhopalus lævifrons*, (Dej.) Westw. Linn. Trans. xvi. p. 661, pl. 33, fig. 65—67.

The palpi of this species, upon examination of a specimen in the collection of T. Norris, Esq., of Redvales, Lancashire, are found to agree with those of the present genus in the relative length of the joints, although the maxillary palpi are not so much dilated as in many of the species.

Fig. 4 *a* represents the head and prothorax seen sideways; 4 *b*, the maxillary, and 4 *c*, the labial palpi; 4 *d*, one of the hind tarsi; 4 *e*, the abdomen in a specimen in Mr. Norris's collection.

SPECIES XXVII. *PAUSSUS SHUCKARDI*. *Westw.*

(Plate 92, fig. 5.)

Ferrugineus; capite longitudinaliter et prothorace transverso sulcatis, hoc subbipartito; antennarum clava longa tenui punctata subcylindrica basi externe subacuto; clypeo vix emarginato; lateribus capitis inter oculos et basin antennarum elevatis; menti dente centrali fere obliterato dentibusque lateralibus obsoletis, palpis maxillaribus vix dilatatis articulo ultimo minuto; prothorace haud capite latiori lateribus antice obtuse dilatatis parte antica elevata et in medio sulco subdivisa; elytris lævibus subnitidis; pedibus com-

pressis haud dilatatis punctatis setis brevibus aurantiis indutis, tarsis brevibus 5-articulatis; abdominis apice subtus spinis duabus divergentibus armato. Long Corp. lin. $5\frac{1}{2}$.
Habitat in Africa australi. Mus. Saunders.

This curious species is nearly allied to *P. armatus*, but I am unable to distinguish any spurs at the extremity of the posterior tibiae, which are furnished with a number of short rigid setae.

Fig. 5 *a* represents the head and prothorax seen sideways; 5 *b*, the maxillary, and 5 *c*, the labial palpi; 5 *d*, one of the hind tarsi.

SPECIES XXVIII.—*PAUSSUS LINEATUS*, Thunberg.

(Plate 94, fig. 1.)

Rufescens glaber elytrorum disco nigro, thorace inaequali lateribus antice elevato et utrinque 1-spinoso postice 3-foveato, antennarum clava magna, compressa apice obtusa basi externe in spinam exoente, capite punctato marginato "Magnitudo Carabi 4-pustulati." Thunb. Long Corp. c. fig. Thunbergi, lin. $3\frac{1}{2}$.

Habitat ad Promont. bonae spei.

SYN.—*Paussus lineatus*, Thunberg Act. Holm. 1781, p. 171, pl. 3, fig. 4 and 5. Fabr. Syst. Eleuth. 2.75.2. Herbst. Syst. ins. Col. vol. 4, p. 102, t. 39, fig. 7, *a b*. Westw. Linn. Trans. xvi. p. 647.

Cerocoma lineata, Fabr. Ent. Syst. 1, 2. 32.

The above is an abstract of Thunberg's characters of a species which is the only one in the genus from Southern Africa, with the disc of each elytron of a black colour.

SPECIES XXIX.—*PAUSSUS AFFINIS*, Westw.

(Plate 94, fig. 2.)

Castaneo-rufus vel ferrugineus subnitidus tenuissimo punctatissimus, elytrorum disco nigro prothorace supra inaequali lateribus antice rotundatis, antennarum clava subovata subconvexa, marginibus acutis basi externe in spinam conicam exeunte, margine postico sulcis tribus obliquis fere oblitteratis; capite vix prothorace angustiori antice vix emarginato; vertice elevato et subcarinato; elytris disco nigro vix punctatis, podice nigricanti; pedibus angustioribus tibiis subcylindricis. Long corp. lin. $3\frac{1}{2}$.

Habitat — ? In Mus. Britann.

SYN.—*Paussus affinis*, Westw. Linn. Trans. xvi. p. 646, pl. 33, fig. 36, 37.

This species is very nearly allied to *P. Harseianus*, but differs in its comparatively longer prothorax, the sides of which, in front, are more rounded and the disc not polished; the club of the antennae is of the length of the prothorax and has three very faint impressions towards the hinder margin, with the disc not glossy; the antennae and legs are castaneous red, and the general colour more of a dull brick-red.

There is no locality attached to the two specimens in the British Museum collection, but in the MS. catalogue the insect is named

lineatus, and Africa given as its habitat, but probably merely on the supposition of its being identical with Thunberg's species.

Fig. 2 *a* represents the antenna seen from above.

SUBSECTION *b*.—SPECIES ASIATICÆ.

SPECIES XXX.—*PAUSSUS COGNATUS*, Westw.

(Plate 94, fig. 3.)

Rufo-castaneus nitidus punctatus, elytrorum singulo disco nigro, capite prothorace parum angustiori clypeo haud emarginato, sulco tenui impresso et fere ad verticem ducto, hoc carina media et impressionibus duabus semicircularibus; antennarum clava subovata, capite haud majori integra subconvexa basi in spinam externe producta; prothorace cordato-truncato parte antica capite paullo latiori lateribus rotundatis setosis, dorso in medio impresso margine postico parum latiori, pedibus subcylindricis, tibiis 2-calcaratis, podice nigricanti punctato tuberculisque duobus minutis conicis distantibus instructo. Long corp. lin. 4.

Habitat in India orientali Bengala. Mus. Melly et Westermann.

Fig. 3 *a* represents one of the posterior tarsi.

SPECIES XXXI.—*PAUSSUS HEARSEIANUS*, Westw.

(Plate 94, fig. 4).

Fulvo-castaneus nitidus punctatus, elytrorum singulo disco late nigro, capite pone oculos carina elevata transversa in medio parum angulata alteraque longitudinali subobsoleta mediana, ad nasum fere ducta clypeo subemarginato; antennarum clava subovata basi externe in spinam conicam producta margineque postico supra oblique 3-impresso; prothorace marginibus antice angulato-rotundatis disco pone medium valde impresso sulcoque tenui medio longitudinali, abdominis segmentis integris podice ferrugineo nitido, tibiis angustis apice 2-calcaratis. Long. corp. lin. 4.

Habitat in India orientali. Mus. Hearsey and Boys.

SYN.—*Paussus Hearseyanus*, Westw. in Proc. Linn. Soc. April 19, 1842. Boys in Journ. of Asiat. Soc. of Bengal N.S. No. 54, p. 427, (No. 3) tab. ann. fig. 3.

A specimen of this species was first brought home by my friend, Col. Hearsey, to whom I dedicated it; three other specimens were captured by Capt. Boys at Sultanpore, Benares, late on the evening of the 21st of June, 1840, and another on the following evening.

Fig. 4 *a* represents the head seen sideways; 4 *b*, the maxilla seen from outside the mouth; 4 *c*, ditto from within; 4 *d*, the same seen obliquely from the outside, the parts indicated by marks corresponding with those used in the other plates of this family; 4 *e*, one of the hind tarsi; 4 *f*, the antenna; 4 *g*, the mandible.

SPECIES XXXII.—*PAUSSUS HARDWICKII*, Westw.

(Plate 94, fig. 5.)

Rufo-castaneus nitidus punctatus, elytrorum singulo plaga lata longitudinali nigra, antennarum clava elongata lineari subcylindrica, basi externe in hamum producta apiceque rotundato; clypeo subemarginato utrinque inter oculos longitudinaliter obsoleto canaliculato carinaque tenui e vertice ad clypeum extensa, prothoracis lateribus antice rotundatis, capite haud latioribus; sulco profundo transverso in medio; impressione tenui abbreviata ad marginem

anticum hand extensa parteque postica hand sulcata; pedibus gracilibus; tibiis 2-calcaratis pedice castaneo-nigro punctato; abdominis segmentis inermibus. Long. corp. lin. 4.

Habitat in India orientali, Nepaul, Almorah. In Mus. Britann. Hope. Boys.

SYN.—*Paussus Hardwickii*, Westw. in Trans. Linn. Soc. xvi. p. 649, pl. 33, figs. 39, 40. Boys in Journ. of Asiat. Soc. of Bengal, N.S., No. 54, p. 434, No. 8, and tab. ann. fig. 8.

Several specimens of this species were brought home by Major-General Hardwicke from Nepaul, and Capt. Boys captured two at Almorah at the end of the month of July, 1842, which came to the lights late at night, and which crepitated as strongly as the Brachini, discolouring test-paper, and emitting a strong scent of nitric acid.

Fig. 5 *a* represents the maxillary, 5 *b* the labial palpi; 5 *c*, the antenna; 5 *d*, the same seen from behind; 5 *e*, the head seen from below; 5 *f*, the anterior tibia and tarsus; 5 *g*, the front of the head and prothorax seen sideways.

SPECIES XXXIII.—*PAUSSUS SAUNDERSII*, Westw.

(Plate 94, fig. 6.)

Totus castaneo-fulvus subnitidus punctatus, capite et prothorace obscurioribus, antennarum clava oblongo-ovata, basi extus in hamum setigerum producta margine acuto; capite inter oculos impressionibus duabus semicircularibus notato; prothorace cordato-truncato in medio transverse impresso impressione utrinque in tuberculum parvum laterale desinente parte antica paullo elevata, lateribus rotundatis; pedibus gracilibus, tibiis apice bicalcaratis. Long. corp. lin. 3½.

Habitat in India orientali. Mus. W. W. Saunders, F.L.S.

Fig. 6 *a* represents the maxillary, 6 *b* the labial palpi; 6 *c* and 6 *d*, the antennæ in different positions; 6 *e*, the anterior tarsus; and 6 *f*, the wing; the * indicating the small cell alluded to in p. 168.

SPECIES XXXIV.—*PAUSSUS* Sp. ined. Latr.

Of this species, the habitat of which is stated by Latreille to be the Isle de France, I am entirely ignorant.

The plant represented in pl. 88 is the Indian *Globba marantina*; and that in pl. 89 is the *Moræa papilionacea* of Linnaeus, from Southern Africa.

NOTE.—I find, on examining the insect described by Captain Boys (noticed in p. 161, under the name of *Platyrhopalus suturalis*), and which that gentleman has been so good as to forward from India for my inspection, that it proves to be identical with *Platyrhopalus angustus*, p. 78. The specimen has the dark mark on each elytron almost obsolete; and the description should be, “Body brown, rather deeper in colour near the *lateral* margins of the elytra.”

PLATE XCVI.

ILLUSTRATIONS OF TWO SPECIES OF GOLIATH BEETLES FROM AFRICA.

GOLIATHUS GIGANTEUS.*

(Plate 95, fig. 1.)

THE extreme rarity of this insect induces me to refigure it from a fine specimen recently obtained by J. A. Turner, Esq., of Manchester, from the river Gaboon, the locality of the specimen figured by Drury. The specimen now represented differs from Drury's figure in having the two lateral black marks on each side of the prothorax united together. The specific character given in my edition of Drury's Illustrations, vol. i. p. 61, requires amending thus:—

"Corpore supra velutino prothorace nigro, lineis 7 holosericeo-albis, elytris obscure ferrugineis basi extremo albo, scutello albo lineis duabus lateralibus nigris."

GOLIATHUS (COMPSOCEPHALUS) HORSFIELDIANUS.

(White in Ann. of Nat. Hist., Jan. 1845.)

(Plate 95, fig. 2 ♂; 3 ♀.).

Char. Subg. Corpus supra sericeum haud nitidum. Caput maris antice cornubus duobus elevato-porrectis; apice sub-bifidis, armatum; feminae subquadratum inerme. Maxillae utriusque sexus lobo basali cornuto; apicali in mare inermi, in femina in cornu subacutum producto. Prothorax maris valde convexus antice in lobum rotundum productus lateribus fere rectis, feminae magis depressus et minus quadratus. Pedes maris robusti tibiis anticis utrinque dentatis; feminae extus tridentatis; tibiis 4 posticis in utroque sexu spinis duabus ante medium marginis externi armatis. Processus mesosterni parum productus apice obtusus. (Fig 2 *a*, head of male seen sideways; 2 *b*, maxilla of male; 2 *c* and 2 *d*, sternal process; 3 *a*, maxilla of female.)

This new subgenus is most closely allied to *Mecynorrhina*, but differs from it and all the other Old World Goliath beetles, in possessing two spines in the middle of each of the four posterior tibiae, in which respect it approaches the New World *Yncæ*. With the exception of the bifid front of the head, the present subgenus has no relation to *Narycius* and *Dicronocephalus*.

SPECIES UNICA. GOLIATHUS (COMPSOCEPHALUS) HORSFIELDIANUS.

Cupreo-viridis prothorace scutelloque castaneo-nigris, prothorace tenue viridi marginato, elytris flavescenti-viridibus corpore subtus pedibusque viridi rubro et cupreo-tinctis. Long. corp. lin. 16 ♂, 15 ♀.

Habitat in Abyssinia, D. Roth. In Mus. "East Ind. Comp."—Mus. Brit. et Seckenberg, Frankfort (D. Ruppell, test. D. Melly, and A. White).

* The synonyms of this species will be found in vol. i. p. 165.

ADDENDA ET CORRIGENDA.

VOLUME I.

- Page 12, *Systella*, W. = *Trigonopteryx*, Charpentier. *S. Raffesii*, W. = *Tr. punctata*, charp., teste De Haan in litt. [sed quæra.]
- Page 65, M. De Haan (in litt.) considers that *Opsomala gladiator* belongs to the sub-genus *Pyrgomorpha* of Serville. Its whole habit, however, is that of the former genus.
- Page 66, De Haan (in litt.) considers *Bactrophora* to be nearest allied to *Pæcilocerus* and *Phymateus*.
- Page 100, *Mastax apicalis* and *vitrea* are considered by M. De Haan (in litt.) to be varieties of one species which he has described in the Bijdragen, under the name of *M. Agrionoides*, Pl. 22, fig. 2.
- Page 127, M. Schaum (Ann. Soc. Ent. France, 1844, p. 390), asserts that the female of *Schizorhina Guérinii*, is the *Cetonia collata* of Gory and Perch (in Silbern. 3, 125), and that the fore tibiae of the males are tridentate; "la supérieure est plus faible." I cannot, however, think that M. Guérin's specimen was thus constructed. He proposes to form it into a new genus named *Heterosoma*.
- Page 161, "*Taxodera denticulata*, Serv., was never received here from Java or any Dutch colonies; probably there has been a mistake at the Museum of Paris; it seems much rather an African insect. The horn on the head in the *Mantida* seems a character of inferior value; *Diana*, Stoll (*Pictipennis*, Serv.), with a horn, has the same form of thorax and abdomen, the same colour of wings as *M. aurlana*, Fabr., and *M. tricolor*, Linn., without the horn. It is the same case, with the pointed eyes, as Burmeister expressed it in *German's Zeitschrift* (2, 29). *M. rubicunda*, Stoll, 25, f. 96, with pointed eyes, belongs to the neighbourhood of *M. precaria*. *Blepharis* and *Schizocephala*, with pointed eyes, are very nearly allied to *Phyllocrania* and *Thespis* with rounded eyes. *Tarachodes coronata*, Klug, and *M. Oxyphilus lobiceps*, Bijdrag. (Pl. 17, fig. 4, 5), have both two little spines before the eyes; for the rest, however, they are very distant (vid. Bijd. p. 62). *Orthodera* has sub-conical eyes (vid. Burm. ii. p. 529)." De Haan in litt.

VOLUME II.

- Page 49, M. De Haan considers *Diapherodes serriicollis** to be identical with *D. gibbosa* of Burmeister, and *D. pumilio* (p. 50), to be a young insect; [sed quære.]
- Page 51, M. De Haan assures me that the horn on the head of *M. (Blepharis) Kuhlii*, is horny as in *Bl. mendica*, and not foliated as in *Phyllocrania*.
- The same gentleman questions whether *M. metallica* (pl. 62, f. 3), is not a variety of *Metalliticus splendidus*—(of which *M. vitripennis*, Burm., is the male); but the two insects are not even congeneric, as may be seen at once in the form of the prothorax, size of the fore feet, and eyes, colour of the hind wings, &c.
- Page 53, M. De Haan considers *Proscopia occidentalis* much nearer to *Pyrgomorpha* than to *Proscopia*.
- Page 54, The sub-genus *Cephalocema* is synonymous with *Astroma charp.*
- Page 56, *Prochilus* possesses the oval foramen near the base of the anterior tibia.
- Page 71, M. Schaum (Ann. Soc. Ent. de France, 1844, p. 401, pl. 10, fig. 1), has described and figured the female *Amaurodes Passerinii*, from Port Natal.
- Page 99, M. Schaum (Ann. Soc. Ent. Fr., 1844, p. 399,) considers *Inea Sommeri* to be only a variety of *I. Weberi* (*Trichius elathratus*, Oliv. Journ. d'Hist. Nat. pl. 6, f. 2). The same author has also described several new African species of *Heterorhina* in the same Annales.†

* M. C. Soummer, Esq., of Altona, assures me that he has received this insect direct from Para, in Brazil.

† Not having received the 3rd trimestre of the Annales for 1844, I cannot notice the critiques of M. Schaum on my articles on the Goliath Beetles, which he has introduced into the former part of his Memoir.

